"A COMPARATIVE CLINICAL TRIAL OF SIDDHA FORMULATION OF *NILAVAAGAI CHOORANAM* (INTERNALLY) AND *THENGAAI THYLAM* (EXTERNALLY) IN THE TREATMENT OF "*KARAPPAN*" (ECZEMA) WITH AND WITHOUT LEECH THERAPY"

DISSERTATION SUBJECT BY

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DECLARATION BY THE CANDIDATE

I hereby declare that this dissertation entitled **"A COMPARATIVE CLINICAL TRIAL OF SIDDHA FORMULATION OF *NILAVAAGAI CHOORANAM* (INTERNALLY) AND *THENGAAI THYLAM* (EXTERNALLY) IN THE TREATMENT OF "*KARAPPAN*" (ECZEMA) WITH AND WITHOUT LEECH THERAPY"** is a bonafide and genuine research work carried out by me under the guidance of **Dr. D. PERIYASAMI, M.D(S), Ph.D,** Lecturer**.,** Department of **Sirappu Maruthuvam**, National Institute of Siddha, Chennai -47, and the dissertation has not formed the basis for the award of any Degree, Diploma, Fellowship or other similar title.

Date: **Signature of the Candidate**

Place: Chennai-47 **Dr. V. ASHA JEBA KEERTHANA**

BONAFIDE CERTIFICATE

Certified that I have gone through the dissertation submitted by **Dr. V. ASHA JEBA KEERTHANA, (Reg.No: 321613203)** a student of final year M.D(s), Branch-III, Department of **Sirappu Maruthuvam**, **National Institute of Siddha**, Tambaram Sanatorium, Chennai-47, and the dissertation work has been carried out by the individual only. This dissertation does not represent or reproduce the dissertation submitted and approved earlier.

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INTRODUCTION

"Medicine is a science of uncertainty and an art of probability"

-Sir William Osler

Siddha Medicine, a native Medicine of Tamilnadu, is the first system to emphasize health as the perfect state of physical, psychological, social and spiritual components of human being. Siddha System of Medicine, well known for its simplicity and credibility has been evolved by spiritual scientists called Siddhars.The advantage and unique feature is the removal of the root causes of the disease and perfect remedy for body and mind.

"The aim of Medicine is to prevent disease and prolong life,

The ideal of Medicine is to eliminate the need of a Physician"

The human body is made up of Imboothangal ie, Akayam, Vayu, Theyu, Appu, Pirthivi in different combinations. The physiological function in the body is mediated by three uyirthathus(humours), which are also made up of these Impoothenkal. They are Vatham, Pitham and Kabam. In each and every cell of the body, these three thathus co-exist and function harmoniously.

Thiruvalluvar in Thirukkural, has mentioned that the derangement of the three humours i.e. Vatham, Pitham and Kabam is the main cause for the onset of diseases in our body. It is,

"மிகினும் குறையினும் நோய்செய்யும் நூலோர்

வளிமுதலா யெண்ணிய மூன்று"

-திருக்குறள்

The five elements constitute the three uyirthathus and their imbalance causes disease. The three thathus are made up of 5 elements. The five elements are Pirthivi, Appu, Theyu, Vayu and Akayam.

வாதம் - வாயு + ஆகாயம்

பித்தம் - தேயு

கபம் - பிருத்வி + அப்பு

Skin is one of the components of five elements ie Prithvi (earth) and this is indicated in Sathaka naadi,

“சேரப்பா சடமாச்சு மண்ணின் கூறு

செறிமயிர் தோல் எலும் பிறைச்சி நரம்பைந்தாகும்”

-சதகநாடி

தோல் = பிருத்வி + தேயு

So any dearrangement in Theyu and its component may affect the skin by disturbing the functions of saaram, senneer, oon and kozhuppu. Skin acts as a linking media between our body and the outer world. The skin is the first organ affected by any change in the universe. Food habits and life style modifications of an individual and seasonal variation also plays an important role in causing disease by altering the three humours. It is also mentioned in Thirukkural as below,

“மாறுபா டில்லாத உண்டி மறுத்துண்ணி

னூறுபா டில்லை யுயிர்க்கு”

-திருக்குறள்

In Siddha System of Medicine, the diseases are classified into four thousand four hundred and forty eight (4448). The disease ***Karappan*** is one among them. Siddha Medicines are very effective in treating chronic diseases and particularly skin diseases.The incidence of ***Karappan*** is considerably increasing now-a-days. A great number of patients are reporting daily in our Ayothidoss Pandithar Hospital for this disease.

“When the ‘I’ is replaced by ‘WE’ even ILLNESS becomes WELLNESS”

There is no cure for eczema, but eczema can be controlled with regular medical care and a good treatment plan. Effective eczema management requires a combination of prevention and treatment. In addition to prevent eczema flare-ups by minimizing any known triggers, treatment is also an important part of eczema management. It is not a contagious disease. It is generally not a serious condition, but there is a potential for complications, such as a secondary bacterial or fungal infection of the eczema rash, thickening of skin, hyper or hypopigmentation. Early diagnosis and treatment can reduce the risk for complication.

“DECLARE the PAST

DIAGNOSE the PRESENT

FORETELL the FUTURE”

The drugs given for treatment are also made up on the basis of this theory. So by prescribing a drug of the same constituents (gunam) the equilibrium is restored. The correction of the imbalance is made by administering the drug which is predominately of the opposite nature. Siddha Medicine revitalizes and rejuvenates the organs, the dysfunction of which causes the disease. This brings back normal functioning of the organs. It also maintains the ratio of Vatham, Pitham and Kabam, thus maintaining the healthy state of the body.

"The Good Physician treats the disease;

The Great Physician treats the patient who has the disease"

-Sir William Osler

That's why I have selected one of the skin diseases ***"Karappan"*** as my dissertation topic. In the stream of Siddha Medicine we exclusively treat ***Karappan*** by Leech Therapy which is one of the bloodletting technique. It not only cure the disease but also helps for rejuvenation.

"Nature cures everything"

-Hippocrates

Siddha medicines are very effective in the treatment of dermatological ailments. Many herbal and herbo-mineral formulations have been indicated for skin diseases. Most of them have been proved effective clinically. As it is one of the chronic diseases which is difficult to cure through pure herbal formulations, so the author selects the herbo-mineral formulations for this dissertation work.

"The Doctor of the future will give no medicine, but will interest her or his patients in the care of the human frame, in a proper diet, and in the cause and prevention of disease"

-Thomas Edison

AIM AND OBJECTIVES

The **aim** of this dissertation is:

A Comparative Clinical trial of Siddha formulation of ***NILAVAAGAI CHOORANAM*** internally and ***THENGAAI THYLAM*** externally in the treatment of ***KARAPPAN*** **(ECZEMA)** with and without **LEECH THERAPY**.

The **objectives** of this dissertation are:

- To study the incidence of the disease with respect to age, gender, socio-economic status, habit and family history.
- To ascertain that according to the mukkutram theory, ***Karappan's*** effect varies with respect to body constitution (prakriti), taste (suvai) and seasonal variation (paruvakalam).
- Relevant evidence from various Siddha literatures and other system of Medicine to be attached
- To know the correlation of aetiology, signs and symptoms of ***Karappan*** in Siddha aspect with eczema in modern aspect.

SIDDHA ASPECTS

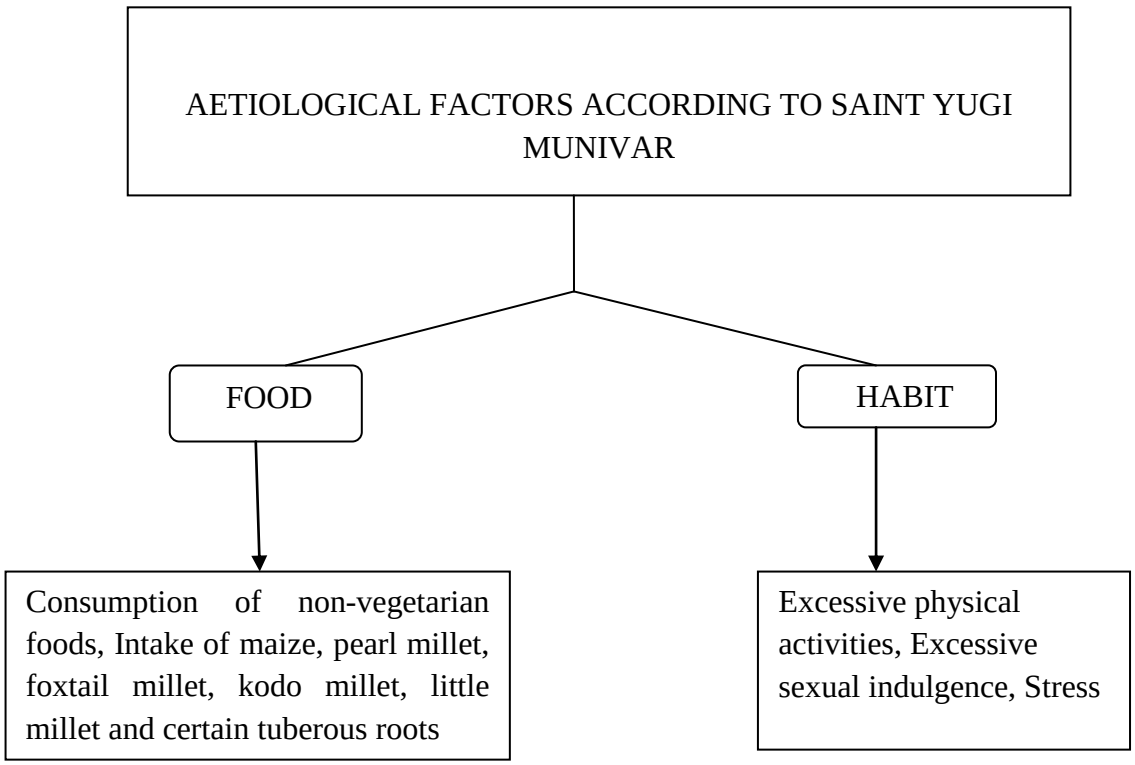
கரப்பான் - KARAPPAN

நோய் இயல் (DEFINITION)

தோலில் திமிர், குரு, புண், தடிப்பு ஆகிய குறிகுணங்களை உடைய படைகளை உண்டாக்கி அவ்விடங்களில் வீக்கம், கொப்புளங்கள் கண்டு அல்லது செதில் போன்று தோல் சுரசுரப்பாகி தோலின் இயற்கை நிறத்தை வேறுபடுத்தி சிலவேளை வெடிப்பு உண்டாக்கி நீர்கசிதல் ஆகிய குறிகுணங்களை காட்டும் தோற்பிணிகளை கரப்பான் அல்லது கரப்பன் என்று கூறுவர். இதில் தினவும் சொரிவும் இருத்தலும், இல்லாதிருத்தலும் உண்டு.

It is characterized by itching, papules, vesicles formation, scaling, hardening of skin with change in colour, sometimes manifesting with cracking of lesion and exudating watery fluid.

நோய்க்காரணம் (AETIOLOGY)



According To Yugi Vaidhya Chinthamani - Karappan Roga Nithanam:

“ஏழான கரப்பானின் உற்பத்திக் கேளாய்
ஏற்ற மாமிசங்கள் புசிக்கையாலும்
கூழான கம்புதினை வரகு சாமைக்
கொடிதான கிழங்கு வகையருந்தலாலும்
பாழான பெண்மாயை தன்னீற் சிக்கும்
பாங்கான விரகத்தான் முயற்சியாலும்”

Vaithya chinthamani Karappan Roga Nidhanam:

Karappan is produced due to

- Consumption of offending food substances
- Sexual indulgence with elderly women
- Cutting of fruit bearing trees
- Psychosomatic factors

According To Guru Naadi Nool:

“வயல்தனிலே பூநாக மண்ணைத் தானே
வருந்தியது புத்துப்போல வத்தை யாகும்
பயல் மொழியீர் தேகத்தில் கிருமிதானே
பரந்துருகி குட்டம் போல் புள்ளிகாணும்
மயலதுவுங் கிருமியுந்தான் நடந்துபுக்கில்
மேனியது சரசரென வெடித்துப் புண்ணாம்
கயல்பெருகும் குழல்மடவீர் சொல்லக் கேளிர்
கரகரத்துச் சொறிபெருகுங் கரபான் தானே”
“சங்கையில் விஷகரப்பான் வருமாறேது
சாரமுடன் கிருமிவிழுந் தன்மையேது
உட்டிணமே அதிகம்வரு மிந்திரிய போகத்தா
லுனுருகி யத்திலே வேவு கொண்டு
நட்டணமாய் வெந்ததொரு மச்சை தன்னில்
நாட்டமிட்டே கிருமியது யணுகும் போது
மட்டுடனே கிருமியெல்லாம் பறந்தங்கேறி
வகையுடனே மாங்கிஷத்தைத் துளைத்து மேவும்

திட்டமுடன் விடகரப்பான் பறந்துமேலே

தினவுடனே பரபரத்துச் சொறி யுண்டாமே”

-குருநாடி நூல்

Relevance of Guru Naadi Nool:

- Karappan occurs due to infestation with parasites and worms it is symptomised by itching, cracking and ulceration of skin.
- Vida Karappan is a type of karappan and is produced due to destruction of vital organs of the body by the infection, excessive sexual indulgence which is symptomised by intensive itching.

Pararaasa Sekara Kirandhi Nidhanam:

“வாத பித்தங் கபமிவை மூன்றுவந்

தேதுவாய் வெயிலான்மடி யாலிகற்

கோதை யார்மயலார் வெயர்வாற்குளிர்

பேதநீரிவை மாலுள பேசுகேளின்

வேதக் காற்றினர் பனைவெல்லத்தால்

பாகமிக்கலான் மேதிப் பாவெயிலால்

தாகமாலின் வடுக்கனி சார்தலால்

மோக வாழை வழுதலை முள்ளிக்கான்

காயும் பல்லிடத் தாற்சுரத் தாற்கனல்

ஏயும் வண்டெலி யால் வருமேதுவென்

ருயு நல்லறி வான ரருளினாற்

மாயமான கரப்பான் வகைகளே”

-பரராசசேகரம் கிரந்தி நிதானம்

- Living in torrid climate
- Excessive sexual indulgence
- Living in cold weather
- Drinking contaminated water
- Airborne infection
- Excessive intake of palm jaggery, banana, fish, mangoes, wheat
- Excessive exposure to sunlight
- Poisonous bite may cause the disease

According to Pararaasa Sekara Kirandhi Nidhanam:

- Drinking of contaminated water
- Eating of banana, cucumber, brinjal, fish
- Poisons of rat bite

Food items inducing Karappan as mentioned in the text, *Siddha Maruthuvam Sirappu,*

"பெருகுஞ் சோள மிறுங்கும் பெருங்கம்பு
வரகு காருடன் வாழையின் காயொடு
உரைகொள் பாகற் கெளிற்றுமீன் உண்டிடில்
விரிவதாய்க் கரப்பானு மிகுந்ததே"

-சித்த மருத்துவம் சிறப்பு

சோளம் - Maize

"சோளமெனப் பேர்படைத்த சோறுகளி னாலுடலில்
மீளச் சொறி சிரங்கு விர்த்தியாம் - நாளுங்
கரப்பானும் உண்டாம் கனமருந்தும் பாழாம்
பரப்பரனைய கணமானதே! யறி"

-அகத்தியர் குணவாகடம்

கம்பு - Pearl millet

"கம்பு குளிர்ச்சியெனக் காசினியிற் சொல்லுவர்காண்
பம்பு சொறிசிரங்கைப் பாலிக்கும் - வெம்பும்
உடலின் கொதிப்பகற்றும் உட்பல முண்டாகும்
அடலயிற்கண் மாதே! யறி"

-அகத்தியர் குணவாகடம்

வரகு - Kodo millet

"எறிகபத்தோ டேபலநோ யெய்தும் வறட்சி
சொறிசிரங்கு பித்தந் தொடரும் - நிறையுங்
கரகமெனப் பூரித்த கச்சு முலை மாதே!
வரகரிசிச் சோற்றால் வழுத்து"

-அகத்தியர் குணவாகடம்

கார் அரிசி

”காரரிசி மந்தங் கனப்புடலில் தூலிப்பும்
பாரறிய வாயுவையும் பண்ணுங்காண் - நேரே
கரப்பானென் பார்பொருந்திற் காயமது மெத்த
உரப்பாகும் என்றே யுரை”

-அகத்தியர் குணவாகடம்

பாகற்காய் - Bitter gourd

”மருந்துகளின் நற்குணத்தை மாற்றும் அ.ஃதொன்றோ
திருந்தவலி வாதத்தைச் சேர்க்கும் - பொருந்துபித்தங்
கூட்டுமத பத்தியதைக் கொண்டிருக்கும் வன்கரப்பான்
காட்டுக்கொம்புப் பாகற் காய்”

-அகத்தியர் குணவாகடம்

வாழைக்காய் - Unripened Banana

”வாழையின் கனியரை வாதமாய்க் காய்முழு
தாழுமம் மருந்தவ ரக்கினிமூலம்”

-அகத்தியர் குணவாகடம்

Consumption of maize, pearl millet, kodo millet, unripened banana, bitter gourd will lead to Karappan disease.

Other factors which are inducing Karappan are:

- சுணையுள்ள சில பொருட்கள் (Poison ivy)
- கம்பளி போன்றவை தோலில் உராய்வதாலும் (Contact Irritants)
- அந்தக் கரண வேறுபாடுகள் (Psychosomatic Disorder)

-சித்த மருத்துவம் சிறப்பு

According to the text, Siddha Maruthuvam Sirappu, Karappan in children may be induced by ingestion of following food items

- கொய்யா (Psidium guava)
- முட்டை (Egg)
- மீன் (Fish)
- கருவாடு (Dry fish)

CLASSIFICATION:

As per **'*Yugi Vaidhya Chindamani - 800'*** the types of Karappan are **seven.**

"ஆமென்ற கரப்பான் தான் ஏழுவிதமாகும்
அடங்காத வாதத்தின் கரப்பானோடு
காமென்ற கண்டாமாங் கரப்பானாகும்
கருதிய தோர் வறட்சியாங் கரப்பானோடு
தேமென்ற திமிர்வாதக் கரப்பான் றானும்
சிரசினிலே பெருக பாலக் கரப்பான்
போமென்ற பித்தமாங் கரப்பானோடு
பெரிய சேட்டுமக் கரப்பான் பெயர்தானேழே"

-யூகி வைத்திய சிந்தாமணி

1. Vatha Karappan
2. Kanda Karappan
3. Varatchi Karappan
4. Thimirvatha Karappan
5. Kabala Karappan
6. Azhal Karappan
7. Iya Karappan.

In ***"Agasthiyar 2000 Part III"***

Karappan has been classified into six varieties. They are,

1. Vaatha Karappan
2. Sori Karappan
3. Varal Karappan
4. Silethuma Karappan
5. Mandai Karappan
6. Varatchi Karappan

In ***"Pathinen Siddhar Balavagada Thirattu",*** *Karappan* is classified into18 types:

"செங்கரப்பான் அனல்கரப்பான் தானும் மண்டைச்
சிரங்கு புண்ணும் அரிகரப்பான் பொரிகரப்பான்
அங்கமதி லெழுகரப்பான் தானுமிக்க

அளராம் உதிரக்கரப்பான் கட்டியோடு

பொங்கமாய் வீங்கிய கரப்பானுந்தான்

புகலரிய சட்டைதடி வெடி கரப்பான்

சிங்கமுக ஏரிகரப்பான் வாத வித்தச்

சேத்ம தோட கரப்பான் பதினெட்டாமே"

-பாலவாகடம் - கரப்பான் வகுப்பு

1. Vali Karappan,
2. Azhal Karappan,
3. Iyya Karappan,
4. Ari Karappan,
5. Oothu Karappan,
6. Soolai Karappan,
7. Vedi Karappan,
8. Mandai Karappan,
9. Pori Karappan,
10. Sattaik Karappan,
11. Odu Karappan,
12. Karun Karappan,
13. Sen Karappan,
14. Kolli Karappan,
15. Thoda Karappan,
16. Vaalai Karappan**,**
17. Varal Karappan,
18. Veengku Karappan.

In ***Siddhar Aruvai Maruthuvam*** :

Diseases of the head are 46. Among this, karappan has been classified into 6 types.

1. Vaatha Karappan
2. Piththa Karappan
3. Kaba Karappan
4. Ven Karappan
5. Seng Karappan
6. Karun Karappan

In the text ***'Athma Rakshamirtham'*** the Karappan is classified into 20 types. These are

1. Vali Karappan,
2. Azhal Karappan,
3. Iyya Karappan,
4. Karun Karappan,
5. Sen Karappan,
6. Mandai Karappan,
7. Ari Karappan,
8. Pori Karappan,
9. Kiranthisoolai Karappan,
10. Vaalai Karappan,
11. Othu Karappan,
12. Sevvappu Karappan,
13. Kolli Karappan,
14. Kadi Karappan,
15. Vengu Karappan,
16. Uthir Karappan,
17. Sattai Karappan,
18. Vedi Karappan,
19. Singamuga Karappan,
20. Eri Karappan

In the text "Agathiyar Rathina Churukka Naadi" the types of Karappan are mentioned as 90

In "Gurunaadi Sasthiram" Karappan has been classified into 85 types.

CLINICAL FEATURES OF KARAPPAN:

"எண்பது கரப்பான் தன்மை யியம்பிடுமாறு கேளிர்
நன்பிடும் வாதம் பித்தம் நலங்கெட்டுத் தாளம்வீங்கும்
பண்படுங் கரங்கள் சந்து புலைந்திடல் கருத்து நோகும்
வனமையுடன் வெடித்துச் சூலை வருவது ரணமீதென்னே"

“உளைஞ்சு மேலயிறுத என் சீதங் காணும்

உஷ்ணமாய் மூத்திரத்தாலுருங்கி விழும்

அளைஞ்சுமே யங்கமெல்லாஞ் சொரியுண்டாகும்

அழலாக வெதும்பலாக் கைகாலோயும்

புளைஞ்சுமே லிங்கத்திற் யுன்போலிருத்திப்

பொடி பொடியாய் சுண்ணாம்புக்கற் போல்விழும்

களைஞ்சுமே நீரோடு மலமுஞ்சிக்கும்

கசியுமே கரப்பானாம்”

-அகத்தியர் இரணநூல்

According to Agasthiyar Rana Nool, clinical features about Karappan:

- Classified into 80 types
- Produced due to derangement of Uyirthathukal(Vital humors), Vaatham, Pitham and Kabam
- Symptoms are
  - Itching
  - Cracking
  - Oozing
  - Pus exudation
  - Sloughing
  - Oliguria
  - Fatigue

நாடிநடை:

1. *தானமுள்ள சேத்துமந்தானிளகில்*

   …… கரப்பான் விரணதோடம்

2. *சிறப்பான வாதத்தில் உட்ணந்தானே சேர்ந்திடுகில்*

   …… மதகரிநீர் கரப்பான்

-குருநாடி

NAADI PATTERNS IN KARAPPAN:

Vaatha kabam

Kaba vatham

Vatha Pitham

DIAGNOSIS OF KARAPPAN

Diagnosis of Karappan in Siddha system is mainly based on Envagai Thervu (Eight types of examination), Poriyal arithal and vinathal.

PATHOPHYSIOLOGY

Changes in lifestyle, occupation, food and habits

↓

Derangement of macro elements in the body (Panchaboothangal)

↓

Derangement of Uyir Thaathukkal

↓

Derangement of seven Udal Thaathukkal

↓

Karappan

UYIR THATHUKKAL

Vaatham

- In Karappan commonly affected types of Vaatham are Abanan, Viyaanan, Samaanan and Devathathan.
- Derangment of*Abaanan* (Vaayu + Theyu) leads to constipation.
- Derangement of *Viyanan* (Vaayu + Earth) leads to itching, dryness of skin, thickness.
- Involvement of *Samanan* (Vaayu + Aahayam) leads to imbalance of functions of other Vaayukkal.
- Derangement of *Devathathan* (Vaayu + Vaayu) leads to sleep disturbances.

Pitham

- In Karappan commonly affected type of Pitham is Ullollithee (Prasakapitham).
- Normally Prasakapitham gives complexion to the skin. In Karappan the skin becomes hyperpigmented and lose its normal colour.

Kabam

- In Karappan commonly affected type of Kabam are Avelambagam and Kilethagam. They may have indigestion and any lung disorders.

UDAL THAATHUKKAL

Imboothangal are important in the formation of body constituents mainly by *Pancha bootha panchikaranam* theory. Derangement of body constituents especially Saaram and Senneer causes karappan.

Derangement of Saaram leads to depression and tiredness of mind and body. Deranged Senneer causes itching, affects colour of the skin.

GNANENTHIRIYAM

Imboothangal forming the basic constituents of Gnanenthiriyam get deranged. Commonly affected Gnanenthiriyam is Mei producing itching, papule, vesicle formation, oozing, crusting, scaling, and hyperpigmentation.

KANMENTHIRIYAM

Imboothams forming the basic constituents of Kanmenthiriyam were not commonly affected in karappan.

PINIYARI MURAIMAI (DIAGNOSTIC METHODS)

Piniyarimuraimai is the method of diagnosing disease. It is based on the following principles:

1. Poriyalarithal (Examination by the sense organs)
2. Pulanalarithal (Examination of the sensory function)
3. Vinaathal (Interrogation)

Poriyalarithal and pulanalarithal goes hand in hand with the concept of examining the patient's 'Pori' and 'Pulan' with that of physician's 'Pori' and 'Pulan'.

'Vinaathal' is a method of enquiring about the details of the patient's problem from his own words or from the person who take care of the patient, when the patient is not able to speak (or) if the patient is a child.'

Envagai Thervu (Eight Types of Examination)

"நாடிப் பரிசம் நா நிறம் மொழிவிழி
மலம் மூத்திரமிவை மருத்துவராயுதம்"

-தேரன்

The Eight Types of Examination

1. Naadi (Pulse reading)
2. Sparisam (Tactile sensation)
3. Naa (Tongue)
4. Niram (Color)
5. Mozhi (Speech or Voice)
6. Vizhi (Eyes)
7. Malam (Stools)
8. Moothiram (Urine)

1. Naadi

In Karappan the following types of naadi could be felt. They were,

Vathapitham

Pithavatham

Kabam

2. Sparisam

In Karappan patient's general body temperature - slight warmth, dryness, roughness and elevation of skin was noted.

3. Naa

In some patients, coated tongue was noted.

4. Niram

Skin colour becomes hyper or hypopigmented in the affected area.

5. Mozhi

No change or disturbance in voice was noted.

6. Vizhi

There are no changes in the vision.

7. Malam

In Karappan some patients have constipation.

8. Moothiram

Neerkuri (Physical examination of urine)

Urine is collected after taking a well-balanced diet, which do not alter the three vital humors. It should be examined within 3-3/4 Nazhigai. (90 minutes).

"வந்த நீர்க்கரி எடை மணம் நுரை எஞ்சலென்

றைந்தியலுளவவை யறைகுது முறையே"

-தேரன் நீர்க்குறி நெய்க்குறி

In Neerkuri the Niram (Colour), Manam (Odour), Nurai (froth), Eadai (specific gravity) and Enjal (deposits) are noted.

Apart from these the frequency of urination, abnormal constituents such as sugar, protein, presence of blood, pus, and crystals must also be found out. In Karappan patients straw coloured urine was noticed.

Neikkuri (oil in urine sign)

The collected specimen as said above is to be analyzed by following method. The specimen is kept open in a glass dish or china clay container. It is to be examined under direct sunlight, without any shaking of the vessel.

Then add one drop of gingelly oil on the surface of the urinary specimen and the Neikkuri was noted in direct sunlight, and conclude the diagnosis as follows:

Character of Vatha neer

"அரவென நீண்டின.ஃதே வாதம்"

When the oil drop lengthens like a snake, it is called "Vaathaneer".

Character of Pitha neer

"ஆளி போற்பரவின் அ.ஃதே பித்தம்"

When the oil drop spreads like a ring, it is called "Pithaneer".

Character of Kaba neer

"முத்தொத்து நிற்கின் மொழிவதென் கபமே"

When the oil drop appears like a pearl, it is called "Kabaneer".

Character of Thontha neer

Snake in the ring, ring in the snake, snake in the pearl and ring in the pearl are the characters of Thonthaneer.

NOIKANIPPU VIVAADHAM (DIFFERENTIAL DIAGNOSIS):

படர்தாமரை பெருநோய் (புண்டரீகக் குட்டம்):

"கூடுமேதாமரையின் பூவிதழ்ப் போல்
குவிந்துமேகறுப்போடு வெளுப்புமாகும்
தேடுமே சிவப்புபலவர்ணமாகும்
தினவுமிகவாராதுசொனையிற் பன்னீர்
வாட்டுமெஅய்யினும் பத்தியாகி
வருத்தமிகவுண்டாகி நோவுமாகும்
போடுமேசரீரங்கள் முகங்கள் காது
புண்டரீகக் குட்டத்தின் புதுமைதானே"

-யூகி வைத்திய சிந்தாமணி

PADARTHAMARAI PERUNOI - YUGI VAITHYA CHINTHAMANI

Symptomised by

- Erythematousness
- Hypo and Hyperpigmentation
- Excessive fatigue

LINE OF TREATMENT

In Siddha system of medicine, the main aim of the treatment is to cure the disease by removing the root cause. Treatment is not only for perfect healing but also for prevention and rejuvenation.

"நோய்நாடி நோய்முத னாடி யதுதணிக்கும்
வாய்நாடி வாய்ப்பச்செயல்"

Thiruvalluvar says in "Thirukkural" about physician's duty to study the disease, study the cause, seek subsiding facts and do what is proper and effective.

In Siddha system, the line of treatment consists of

- Neekkam (Treatment)
- Niraivu (Rejuvenation of wellbeing)
- Kaappu (Prevention)

Rules for healthy living has been quoted in Patharthaguna chinthamani as follows,

“திண்ண மிரண்டுள்ளே சிக்க வடக்காமற
பெண்ணின்பா லொன்றைப் பெருக்காமல் - உண்ணுங்கால்
நீர்சுரக்கி மோர்பெருக்கி நெய்யுரக்கி யுண்பவர்தம்
பேருரைக்கிற் போமே பிணி“

-தேரையர்

Treatment

- விரேசனம்
- உள்மருந்து
- வெளிமருந்து
- பத்தியம்

Viresanam(Purgation):

“விரேசனத்தால் வாதந் தாழும்
வமனத்தால் பித்தம் தாழும்
நசிய அஞ்சனத்தால் கபம் தாழும்
துகின்ற மலக்கட்டை யொழிய வைத்தால்
உடலிலுள்ள வாதையெலா மொடுங்கிப் போகும்
அறிந்திடும் வாதம் அடங்கும் மலத்தினில்“

For purgation, Agasthiyar Kuzhambu 130 mg with Sangan kuppi juice was administered at early morning empty stomach before starting the treatment to bring the vitiated Uyirthathukkal to normal.

Internal Medicine:

Nilavaagai chooranam - 1 gm, two times a day with ghee

Anubanam:

“ அனுபானத்தாலே யவிழ்தம் பலிக்கும்
இனிதான சுக்குஇஞ்சி - பினுமுதுகால்
கோமயம்பால்முலைப்பால் கோநெய்தேன் வெற்றிலைநீர்
ஆமிதையா ராய்ந்து செய்யலாம் “

-தேரையர் வெண்பா

External Medicine:

Thengaai Thylam

Pathiyam (Dietary Regimen):

“ பெருகுஞ் சோள மிறுங்கும் பெருங்கம்பு
வரகு காருடன் வாழையின் - காயொடு
உரைகொள் பாகற் கெளிற்றுமீன் உண்டிடில்
விரிவதாய்க் கரப்பானு மிகுந்ததே“

-பதார்த்த குண சிந்தாமணி

“புளிதுவர் விஞ்சு கறியார் பூரிக்கும் வாதம் “

-பதார்த்த குண சிந்தாமணி

In Siddha system of medicine the importance of dietary habits also emphasised for the diseases management and prevention. This line is well understood in the verse, given above. In diseased conditions diet restrictions or pathiyam are strictly followed to increase the effectiveness of medicine for curing diseases.

Diet restrictions or pathiyam should be strictly followed in Karappan patients. These are prescribed to normalize the deranged thodam and to increase the potency of the drugs.

Patients are strictly advised to follow the dietary and other restrictions:

- Avoid the maize, pearl millet, kodomillet, fox tail millet, sesban, brinjal, kaararisi, bitter gourd, pickles, tamarind
- Avoid all non-vegetarian foods such as fish, prawns, crab, chicken etc.
- Avoid substances allergic to the particular individual
- To take Thiridhoda samapporulkal (elam, manjal, seeragam, kaayam, chukku, venthayam, poondu, milagu)
- To take vegetables and green leafy vegetables
- To take more germinated grams, dates, figs and powder of fenugreek regularly
- To avoid hard soaps or Sikakkai to clean the site of lesions
- To use green gram powder or any other Siddha herbal preparation for bath

SPECIAL TREATMENT:

BLOOD LETTING:

A person gets disease either because of his food habits or actions. His physical constituents are deranged. This is rectified initially by purgative, emetic, diaphrotic or nasal application methods. But in the later stages the impured blood is removed by blood letting.

Blood letting is done by

1. Leech application
2. Sucking using hollow horns (drains) and
3. Venesection (incisions of the blood vessel)

Blood letting is done in psychiatric illness, diseases of the head, ear eye and tongue, colic pain, elephantiasis, swelling in the neck, infective mono-arthritis, lumbago, diseases of the blood caused by deranged Vatham, Pitham and dermatological conditions. Blood letting should not be done in respiratory diseases, inclusive of tuberculosis, paralysis of the whole body (quadriplegia), convulsion, jaundice and anaemia.

This should not be done to a person who is frightened, drunkard, dancer, involved in sexual activity, do not posses the manly qualities, children, elders and persons not afflicted with any disease. But if any person is suffering from a poisonous bite and if there is a danger for his life (ie acute condition) blood letting may be done.

Blood letting should not be done in a cloudy or a windy day for the bleeding will not be proper.

(A Compendium of Siddha Doctrine)

அட்டை விடல் - Leech Therapy

Leech application to locally affected areas, blocks or swelling is known as ***Attai-vidal.*** A treatise compiled by Dhanwantri on the art of healing by the use of leeches; a science on leech-craft. Attai vidal is defined as application of leech in part of the body for sucking the blood for the purpose of curing the disease.

“அட்டையின் விதிதனை யறிய யாவருந்
திட்டம தாகவே செப்ப வுன்னினேன்
மட்டமர் குழலினாள் வரன ளித்திடும்
இட்டவி நாயகன் இணையடி போற்றியே“

-அகத்தியர் நயன விதி ஐந்நூற்று

இருப்பிடம்:

ஆழமில்லாததும் ஆழமுடையதுமான தெளிந்த நல்ல நீரில் அல்லி, நெய்தல், கொட்டி போன்ற மணமுள்ள செடிகள் இருக்குமிடங்களில் கிடைக்கும். மற்றும் இது, மணலின் கீழ், மறைவாக ஒதுங்கிக் கிடைப்பதும் உண்டு. இவ்வட்டையைப் பிடித்து முக்கால் பாகம் நீருள்ள வாயகன்ற கண்ணாடிப் புட்டியில் விட்டு அந்நீரில் உணவுக்காகச் செவ்வல்லி, கொட்டி, பசுமஞ்சள் இவற்றின் கிழங்குகளிலொன்றை அரைத்துச் சேர்த்து, இவ்வட்டை பற்றிக்கொண்டு உறங்க இலைகள் இட்டு, புட்டியின் வாயை ஒரு மெல்லிய துணியால் மூடி, அடிக்கடி நீரை மாற்றிக் கொண்டு வந்தால் பல திங்கள் உயிருடன் வாழும்.

"ஆதியோ தியவே தத்தில் அட்டைக்கு மேனி யுந்தான்
ஏதெனில் பல்லு மூன்று மியன்றஅஞ் சடுக்குத் தோலும்
ஓதிய முகமும் பச்சை உதிரமுஞ் சிவப்பாய் பின்னை
தீதலாப் பக்க மிரண்டும் பருத்திடும் நரம்பு சேரும்
அரவின் வாய்த் தேரைப் போன்றும் அணிமழுத் தலையே போன்றும்
பருதியின் பைங்கண் போன்றும் பலமணி சிதறி னாற்போல்
விரவியே பல்நெ கிழ்ந்து மெத்ததெனக் கடிக்கும் அட்டை
கருதியே காலன் தன்னைக் கட்டிடுங் காயந் தானே.
வெள்ளை நிறத்தான் வேதியனார் மிகுசெங்கழுநீர் சத்திரியன்
சொல்லும் பவளம் வைசியனாஞ் சூத்திர னெலுமிச் சம்பழமாங்
கல்லைப் போலக் கதித் தெழுந்த கருது புறத்தில் விடுவீரேல்
மெள்ளக் கரைத்திட் டோடுமென விளம்பிச் சொன்னோம் மேதினிக்கே"

-அகத்தியர் நயன விதி ஐந்நூற்று

வகைகள்:

அட்டை மூன்று வகைப்படும். அவை நல்ல அட்டை, தீய அட்டை, சாதாரண அட்டை எனப்படும். இவற்றுள் **1) நல்ல அட்டை** நான்கு வகைப்படும்.

- **முதல் வகுப்பு** - வெண்மையும் சிறிது பொன்நிறமும் பொருந்தியிருக்கும்.
- **இரண்டாம் வகுப்பு** - செங்கழுநீர் நிறமாயிருக்கும்.
- **மூன்றாம் வகுப்பு** - பவழ நிறத்தையும் அரிசியின் உருவத்தையும் பெற்றிருக்கும்.
- **நான்காம் வகுப்பு** - பச்சை அல்லது எலுமிச்சைம்பழ நிறமாகும்.

2) தீய அட்டை

கருநிறம், கருஞ்செம்மை நிறம் அல்லது வானவில் போன்ற நிறம் ஆகிய பல நிறங்களைப் பெற்றிருக்கும்.

3) சாதாரண அட்டை

பொன்நிறத்தில் கருநிறம் பொருந்தியிருக்கும்.

ஆயள்வேத நூலின் படி இது 12 வகைத்தாயினும் வைத்தியத்திற்கு 6 வகை மாத்திரம் தேர்ந்தெடுக்கப்பட்டது. மற்ற 6ம் விஷ தன்மையுடையது. பயன்படும் ஆறு வகைப்படும்.

- கபிலம் (tawny leech)
- பிங்கலை (one of pale red tinge)
- சங்குமுகி (one with a yellow long sharp head)
- மூஷிகம்
- புண்டரீகமுகி (that which is brown in colour and with mouth like the flower nelumbu)
- சபரிகம் (that which resembles the leaf of the lotus flower in colour)

The other species of leeches common in South India are:

1. The English or speckled leech. It has 6 stripes spotted with black and a belly greenish yellow and spotted.
2. The Peculiar Madras leech is a bdellium found in stagnant ponds and ditches. It is larger than the European leech and very voracious. These are used by Vaidynas and Ilekeems in the same way as is done by Europeans.
3. The large Horse leech has depressed body and a dusky coloured back with the belly yellowish green.
4. The Ceylon leech about an inch long with point so sharp as to make its way through small openings is dangerous to pedestrians in certain seasons. It attacks the feet, the legs and the thighs.

In Surgery, it is used experimentally for intravenous and intraperitoneal injections. It has an extract prepared from the head which is employed to prevent the formation of blood clots.

அட்டையின் உடலமைப்பு:

சாதாரண அட்டை 2 (5 செ.மீ) முதல் 4 அங்குல (10 செ.மீ) நீளமுள்ளதாய் சிறிது கூர்மையான முனைகளுடன் புறத்தோலில் 6 நீளக் கோடுகளுடையதாய் குறுக்குச் சுருக்கங்களையும் பெற்றிருக்கும். அட்டைக்குப் பல் மூன்று, தோலடுக்கு ஐந்து, முகம் பச்சை அல்லது சிவப்பு பக்கமிரண்டிலும் பருத்த நரம்பு இருக்கும். ஓர் அட்டை சுமார் 120 துளி இரத்தம் வரை இழுக்கும் வன்மை உடையது. அட்டை உறிஞ்சுவதனால் 12 அங்குலம் வரை உள்ள இரத்தம் வெளிப்படும் என்பதை,

"அட்டைவிடி லுதிரம் ஆறிரண்டங்குலம் போம்" என்ற தொடரால் அறியலாம்.

பயன்படும் அட்டையின் எண்ணிக்கை:

- ஆறுமாதத்திற்குக் கீழ்ப்பட்ட குழந்தை - ஒரு அட்டை
- ஒரு வருஷத்திற்குக் கீழ்ப்பட்ட குழந்தை - இரண்டு அட்டை
- இரண்டு வருஷத்திற்குக் கீழ்ப்பட்ட குழந்தை - மூன்று அட்டை
- மூன்று வருஷத்திற்குக் கீழ்ப்பட்ட குழந்தை - நான்கு அட்டை

- தலைநோவுடன் வரும் சுரங்களுக்கு பிணியாளி வாலிபனாயும் பெலவானாயும் இருப்பானாகில் - நெற்றியொன்றில் 4 அல்லது 6 அட்டை(பிடரியின் மேற் பக்கத்தில் கடிக்கவிட்டால் அதிககுணங்கொடுக்கும்)
- சுரத்துடன் மார்பிலும் வயிற்றிலும் கடினமான வலிகளுக்கு - 8 அல்லது 10 அட்டை வலியின் மேல்விட வேண்டும்
- விப்புருத்திகள், பருக்கள், அரையாப்புகள், நசிவுகள், சுளுக்குகள், கடிகள் மற்றும் தோலின் மேல் வரும் இரத்தச்சுரப்புகள் - 6 அல்லது 8 அட்டை விட்டு சுடுதண்ணீரால் ஒற்றடமிடவும்
- கக்கிருமல் தொடங்கினபொழுது குழந்தையின் வயது ஒன்றுக்கு ஒவ்வொரு அட்டை வீதம் முறையாய்க் கூட்டி ஆறுவயது வரைவிடலாம் அப்புறம் எத்தனை வயதாயிருப்பினும் 6 அட்டையே போதுமானது
- கண்ணோய்களுக்கு - 4 அல்லது 6 அட்டை கடைக்களின் அருகேயிருக்கும் பொட்டுகளில் விடவும்

-இரண வைத்திய சிந்தாமணி

மருத்துவத்திற்கு ஆகாத அட்டை:

"ஆகா வட்டை யதுகேளாய்
அலவன் தவளை நீர்ப்பாம்பு
மேகா சலத்தில் பிறந்தனவும்
வேண்டா சருகிற் பிறந்தனவும்
போகாச் சுனையில் பிறந்தனவும்
பொல்லா வட்டை யிவையென்றே
பாகார் மொழிகொள் பைந்தொடியே
பாரா யட்டை வகுப்பினையே"

நண்டு, தவளை, நீர்ப்பாம்புகளையுடைய நீர் ஓட்டமில்லா நீர்நிலை, சருகூறிய நீர் இவைகளிற் பிறந்த அட்டை மருத்துவத்திற்காகாவாம்.

செய்கையும் ஆட்சியும்:

"முன்னே கேளா யட்டையதன்
குணத்தைச் சொல்வன் மொய்குழலே
அந்நாளன்னம் பால்பருகும்
அதுபோல் வாங்கும் விஷநீரை
நன்னாள் பார்த்து நோயறிந்து
நயனந் தன்னில் விடுவாயால்
சொன்னோஞ் சொன்னோம் நாற்றிசையுந்
துலங்கச் சொன்னோஞ் சொன்னோமே "

-அகத்தியர் நயன விதி ஐந்நூற்று

அன்னம் நீரைப் பிரித்துப் பாலைப் பருகுவது போல, அட்டையானது விடநீரைப் பருகி இரத்தத்தைச் சுத்தி செய்யும்.

வீக்கம் நீக்குஞ் செய்கைக்காக கார் இரத்தக் குழலைக்கீறி இரத்தத்தை வெளிப்படுத்தல் போல இதைச் சிறப்பாக இரத்தத்தை வெளிப்படுத்த முதியவர்க்கும், பெண்களுக்கும், சிறுவருக்கும், மென்மை உடலைப் பெற்றோர்க்கும், ஆயுத சிகிச்சைக்குப் பயந்தவர்க்கும், பித்த உடம்பினர்க்கும் சிறப்பாய் உபயோகிக்கலாம்.

சுவை - இனிப்பு

தன்மை - குளிர்ச்சி

பயன் - பித்த நோய்கள் நீங்கும்

அட்டையின் சுத்திமுறை:

ஒரு வாயகன்ற பீங்கான் பாத்திரத்தில் மஞ்சள் கரைத்த நீரிட்டு அட்டையை அதில் விட அதன் உடம்பினின்று கோழையொத்த கழிப்பொருள் வெளியாகும். பின்பே அந்த அட்டையை உபயோகித்தல் வேண்டும். இக்கழிப்பொருள் அதிகமாயிருப்பினும் அது நீரில் சுறுசுறுப்பாய் ஓடாவிடினும் அவ்வட்டை பற்றாது.

நோயாளியைத் தயாரிக்கும் விதம்:

"சத்தியில் மாந்த ருக்குந்
தையல்பிள் ளையர்த மக்கும்
ஒத்துநின் றூட்டு வித்து
உறக்கமுந் தவிர்ந்தி டாமல்
மத்தியா னத்து மேலாய்
மண்கொண்டு சுத்தி பண்ணிப்
பற்றிய நோய்கள் தன்னைப்
பார்த்துநீ அட்டை கட்டே"

நோயினனுக்கு முன்னாள் பேதிக்கு அல்லது வியர்வை பெருகுவதற்கு அல்லது வாந்திக்குக் கொடுத்து மறுநாள் அட்டையை விடவேண்டும். அட்டை விடும்போது நோயாளிக்குப் பட்டினியோ தூக்கமின்மையோ கூடாது. அது விட வேண்டிய இடத்தை உவர் மண்ணும் மணலும் கொண்டு கழுவிச் செம்மண்ணால் பூச வேண்டும்.

அட்டை விடுதற்கு ஏற்ற நேரங்கள்:

அட்டை விட நடுப்பத்து நாழிகை சிறந்ததாயினும், குழந்தைகளுக்குக் காலையில் விடலே நன்று. ஏனெனில் மாலையில் விட்டால், ஒருகால் இரவில் கடிவாயினின்றும் இரத்தம் பெருகின் கவனிக்க இயலாது. அதனால், ஆபத்து நேரும். சிறுவர்களுக்கு இரத்தம் விரைவில் வெளிப்படுமாகையால், கண்காணிப்பாக என்பிருக்குமிடங்களில் விடலே நன்று.

கடிக்கும்படி செய்யும் விதம்:

வாய் குறுகலான நீர் நிறைந்த பாத்திரத்தில் அட்டையை விட்டு அப்பாத்திரத்தின் வாயைக் கடிக்கவிட வேண்டிய இடத்தில் கவிழ்த்து நீர் வெளிப்படா வண்ணம் பிடித்தால் பற்றும், பற்றாவிடின் இடத்தைத் துடைத்து ஒரு துளி பாலைத் தடவி நீரில் நனைத்துப் பிழிந்த பஞ்சால் அட்டையை மெல்லெனப் பிடித்துவிடப் பற்றும். இதற்கும் பிடிக்காவிடின் இடத்தைச் சுத்தமான குண்டூசி கொண்டு இரத்தம் சற்றே கசியும் வண்ணம் கீறி,

அதன்மீது அட்டையை விட அ.்.து உடனே பற்றிக் கொள்ளும். அட்டையின் முகம் பெரிதான முனை குதிரைக் குளம்பு போன்ற உருவத்துடன் மிக நுண்ணிய வியர்வைத் துளியுடன் தோன்றினால், நன்றாய்க் கௌவிக் கொண்டதென்று உணர்ந்து, அதன்மீது ஈ மொய்த்து இரத்தம் இழுப்பதைத் தடுக்காமலிருக்க ஈரத்துணியிட்டு மறைக்கவும்.

கடித்த அட்டை கீழே விழ:

அட்டை அரைமணியிலிருந்து நான்கு மணி நேரத்திற்குள் இரத்தத்தைக் குடித்துத் தானே கீழே விழுந்து விடும். கீழே விழச் செய்ய வேண்டுமாயின் உப்பு நீர் அல்லது காடிநீரைக் கடிவாயில் தெளிக்கவும். அட்டை மூக்கின் தொளை, குதம், குய்யம் இவிவிடங்களில் புகந்துவிடின் அதனை வெளிப்படுத்த மேற்படி சிகிச்சையே பொருந்தும்.

கடிவாயில் இரத்தத்தை நிறுத்தவும் பெருக்கவும்:

அட்டை விழுந்தபின் கடிவாயினின்றும் இரத்தம் அதிகமாக வெளிப்படின், பொரித்த படிகத்துள், துருசின் தூள், மஞ்சட் தூள், பஞ்சு சுட்ட கரி, சீலைக்கரி, சிலந்திக்கூடு, மாசிக்காய்த்தூள் இவைகளுள் ஏதாவதொன்றைக் கடிவாயிலிட இரத்தம் நிற்கும். நிற்காவிடின், கடிவாயை விரலால் சிறிது நேரம் அழுத்தினாலும், காடிக்காரமுனையால் தொட்டாலும் துண்டுச் சீலை வைத்து அழுத்தமாகக் கட்டினாலும் நின்றுவிடும். இதற்கும் பலன் இல்லையேல், பழுக்கக் காய்ச்சிய ஊசியால் கடிவாயைச் சுட நிற்கும்.

கடிவாயினின்றும் இரத்தம் வெளிப்படும்படி செய்ய, வெந்நீர், தவிடு, நொச்சியிலை, வேப்பிலை இவைகளுள் ஒன்றைக் கொண்டு ஒற்றடமிடவும். அட்டை விடுதல் நன்கு நிறைவேறிற்றென்பதற்கறிகுறி, கெட்ட இரத்தம் நீங்கியவுடன் நோயினால் உண்டான சோகமும் வேதனையும் நீங்கும். இதனை,

“துட்டரத்தம் போனக்கால் சோக முடன்கூடிய
திட்டமுடன் வேதனையும் தீருமே - வட்டதன
மானே, உருவினுக்கு மற்றொன்றும் வாராது
தானே தனக்குநிகர் தான்“

குற்றத்தின் அளவாகக் குருதியில் ஏற்படும் மாறுதல்கள்:

வளிகேடடைந்திருபின் குருதியில் வெண்ணிறமும், அழல் கெட்டிருப்பின் மங்கலான நீல வண்ணமும், ஐயம் கேடடையின் இருள் நிறமும் காணப்படும்.

இரத்தத்தை அதிகமாக உறிஞ்சுவதனாலுண்டாகும் கெடுதிகள்:

அட்டை மிஞ்சினாலும், இரத்தம் அதிகமாய் வெளிப்பட்டாலும் கடிவாயில் தினவு உண்டாய்க் கடுத்து வீங்கும்.

“அஞ்சுவிரல் நீளத்தில் அட்டை விடலாகும்
மிஞ்சவே அட்டைவிட வேண்டாம் - ம-ஞ்சின்
கடிவாய் தினவாய் கடுத்துவலி வீங்குந்
துடியாரு நல்லிடையாய் சொல்“

அதனால் நீரில்லாப் பயிர் போல நோயாளி வாட்டமடைந்து உயிர் துறப்பதற்கு வழியுண்டு.

அட்டைக் கடியினால் உண்டான புண்ணுக்குச் சிகிச்சை:

காடி, காரெள், கற்றாழை இம்மூன்றையும் அரைத்து மேல் பூசிவந்தாலும், கற்றாழைமடலைச் சுட்டு இரண்டாய்ப் பிளந்து மஞ்சள் தூளைத் தூவிப் புண்ணின் மீது வைத்துக் கட்டினாலும் நீங்கும்.

ஒரு முறை உபயோகித்த அட்டையை மறுமுறை பாவிக்க:

கடித்து விழுந்த அட்டையைத் தவிட்டில் விட்டுப் புரட்டியோ புரட்டாமலோ, அதன் வாயில் எள்ளின் பொடி அல்லது மஞ்சள் பொடியைத் தூவின் இரத்தத்தைக் கக்கும். அது சரியாக வெளிப்படாவிடின், இரு விரல்களாலும் மெதுவாய்ப் பின்னிலிருந்து முன் அட்டையைப் பிடித்துவிட, இரத்தம் நன்றாய் வெளிப்படும். பிறகு, புற்றுமண் கரைத்த தெளிநீரில் விட்டு வைத்திருந்து, அதன்பின் முற்கூறிய நீரில் பத்திரப்படுத்த வேண்டும். இதனை,

"குடித்துவீ ழட்டையை கொண்டுதவிட் டில்விட்டே
பிடித்ததின்வாய் எள்ளதனைப் பெய்து - பிடித்துவிட
விட்டரத்தம் போனால் துலைநீரில் நீந்தவிட்டுக்
கட்டுவது மண்குடவைக் கண்"

பாவித்த அட்டைகளையும் பாவியாத அட்டைகளையும் வெவ்வேறாக வைத்தல் வேண்டும். ஒருமுறை உபயோகித்த அட்டையை ஏழு நாட்கள் சென்ற பின்பே மறுமுறை பாவிக்கலாம். இவ்வாறு அட்டைக்கு ஓய்வளிக்காமல் திரும்பத் திரும்ப விடின், அது நச்சுத்தன்மையை அடையும். அதனால் கடிவாயில் வீக்கம், வேதனை, சுரம், தினவு, புண், கலக்கம் முதலியன உண்டாம். இதனை,

"விட்டவுரு வேறே விடாதவுரு தான் வேறே
கட்டும் குடுவைதனில்" என்றும்
"பட்ட உருவைப் பலகாலும் - விட்டுவிடு
மத்தா லுருவடைய மான விஷமாகும்" என்றும்
"விட்டவுருத் தானும் விஷவுருவே யானக்கால்
வெட்டுருவாய் வீங்குமது வேதனையாந் - திட்டஞ்
சுரமாங் கலக்கமாஞ் சூழ்தினவுங் காணும்
உரமாகும் புண்ணு முதிர்ந்து"

-அகத்தியர் நயனவிதி

உபயோகம்:

- அடிபட்ட வீக்கங்கள், கட்டிகள், கிரந்தி, வீக்கங்கள், சுளுக்கு, தோல், என்பு போன்ற உறுப்புகளைப் பற்றிய வீக்கங்கள் ஆகியவைகளுக்கு அவ்வவ்விடங்களில் அட்டையை விட்டு இரத்தத்தை வெளிப்படுத்த அந்நோய்கள் தீரும்.
- மருத்துவத்திற்கடங்காத வாந்தியில் நெஞ்சுக்குழியில் விட நீங்கும்.
- தாங்காத் தலைநோய்க்குப் பொட்டில் விட அது தணியும். தணியாவிடின் பிடரியில் விடவும்.

- சுரத்திலுண்டாம் மார்புநோய், வயிற்றுநோய் ஆகியவற்றிற்கு நோய் கண்ட இடத்தில் விடவேண்டும்.
- இரத்த மூலத்தில் இரத்தம் தடைப்படுவதனால் உண்டாம் தலைநோய்க்கு, அட்டையைக் குதத்தைச் சுற்றி விட நீங்கும். ஆனால், இது குதத்திற்குள் புகாவண்ணம் காத்துக் கொள்ளவும்.
- சூதகத் தடையினால் உண்டாம் தலைநோய் நீய்கத் தொடைகளின் உட்பக்கம் கடிக்க விடவும்.
- இரத்த சீதபேதியில் உண்டாம் வயிற்றுக் கடுப்புத் தீர குதத்தைச் சுற்றி விடவும்.
- கல்லீரல் வீக்கத்திற்கு அவ்விடத்தில் விடப் பலன் தரும்.
- சிறாருக்குண்டாம் கக்குவான் நோய் தீர நடுமுதுகின்மேல் விடவும்.
- நாட்பட்டதும் பலவகைப்பட்டதுமான கீல்வீக்கங்களுக்கு அட்டை விட்டு நற்குணம் கண்டிருக்கின்றோம்.
- மற்றும் கண்ணில் கனம் தோன்றி வலித்து, நீரொழுகிக் கொண்டு புருவத்தில் வலியுண்டானால் அட்டைவிடின் அது நன்றாகும். இதனை,

"கண்ணது கனத்து நொந்து
கண்ணில் நீ ரொழுகு மாயின்
விண்ணுடன் புருவத் தோடு
மேலுற வலித்த போது
நிண்ணிய அட்டை விட்டு
நிமைபெறு நீளந் தன்னில்
திண்ணிய கிரமத் தாலே
செய்வதோர் கருமம் நன்றாம்"

மேலே குறிப்பிடப்பட்ட குறிகுணங்கள் எல்லாக் கண்ணோய்களுக்கும் பொதுவாயினும், சிறப்பாய் நேத்திரச் சூலை, வாத காசம், கருவிழியில் உண்டாம் படர்விரணம், காசநோயில் சரிவரச் சஸ்திர சிகிச்சை செய்யப்படாததினால் உண்டாம் அழற்சி இவைகளுக்கு அட்டை விட்டுப் பலன் கண்டனர். மற்றும் நிமையில் அட்டையை விடவேண்டுமென்று கூறப்பட்டிருக்கிறது. அதற்கு, கடைக் கண்ணிலிருந்து ½ அங்குல (1.25 செ.மீ) தூரத்தில் புருவ முனைக்குக் கீழ் விடுவது நலம்.

- ஆண் தன்மையற்றவர்களுக்கு அட்டையை இலிங்கத்தின் மேற்புறத்தில் விடுவதனால் கெட்ட இரத்தம் நீங்கிச் சுத்த இரத்தத்தினால் ஆண்குறி வலுவடையும்.

அட்டை விடக்கூடாத இடங்கள், திதிகள்:

அட்டைகளைக் கார் இரத்தக் குழல்கள் தோன்றுமிடங்களிலும், நாடி பரிசிக்கப்படும் வீக்கங்களிலும், கண்ணிமைகளிலும், ஆண்குறி, அண்டம், குய்யம், ஸ்தனம் இவைகளின் மீதும் விடலாகாது, விடின் வீக்கத்தை உண்டுபண்ணும்.

“சீருள பிரதமை சேரும் பெருவிரல்
நேர்பெறும் உள்ளங் காலது துதியை
திரிதியை முழங்கால் சேர்ந்திடு மென்க
சதுர்த்தி பெருந்துடை தாவிய பஞ்சமி
குய்யத் திடத்தே குடியிருந்திடுமாம்
அய்யனே சஷ்டி அயர்ந்திடும் நாபி
சத்தமி முலையில் தானிருந் திடுமே
ஒத்திடும் அஷ்டமி யோதினோம் கரத்தில்
மெத்திடு நவமி மேவிய கழுத்தில்
அதரந் தசமியி லாகுமவ் விடத்தே
ஏகா தசியிலிருந்திடும் நாவில்
துவா தசியில் துயின்றிடும் நெற்றி
திரியோ தசியில் சேர்ந்திடும் புருவம்
சதுர்த்தி பிடரி தானிருந் திடுமே
உதித்திடும் பூரணம் உச்சியி லுறையும்
செப்பிய வமுதம் நிலைநின் றதனால்
சத்திரம் பண்ணிடில் தானெழும் நோய்கள்
கொப்பளித் திடினும் குத்தப் படினும்
தப்பிலா அரவம் தான்கடித் திடினும்
அட்டை கடிக்கினும் அடிதடி சிலந்தியும்
வயிற்றில் பிணியெனும் மரணம் தாகுமே
காசினி தனிலே கைவிஷ தாரி
திதிகளை யறிந்து செய்திடப் பலிக்கும்
மகிழ்பெறு முனிவர் மகிழ்ந்துரைத் தனரே“

-அகஸ்தியர் இரணவைத்தியம்

Description of Leeches

Leech taxonomy

Leeches are related to the phylum annelid, class clitellata, it is classified in to 4 sub classes, 3 orders, 10families, 16 subfamilies, 131genera and 696 species. Leeches are hermaphrodite in nature and are distributed all over the world. In India, about 45 species belonging to 22 genera occur. The common Indian species are Hirudinaria granulosa, H. viridis, H.javanica, H. ventralis and H. manillensis. Hirudo medicinalis (Medicinal leech) is a European species which has been found in ponds and stream of the eastern portion of the United States. It is comparatively large in size and often growing up to 10 or more centimeters in length.

Leech locality and ecology

The leeches are lived in different environment, including aquatic and moist area. Some leeches are live in fresh water, river, ponds, lake and sea. The leeches have high physiological flexibility, which make them able to withstand numerous environmental changes. According to Siddha system of medicine the medicinal leeches are live in pure water which contain Salli (Nymphaea stellata), Neithal (Nymphaea pubescens) and Kotti (Aponogeton monostachyon) plants. Small size leeches are only used for treatment purpose.

Medicinal leech

There are about 600-650 species were found around the world, out of this only 15-20 are used for treatment purpose. Hirudo medicinalis is the commonly used leeches for treatment purpose in western countries. In India, the leech Hirudo ventralis (Indian cattle leech) is used for medicinal purpose. Poisonous leeches are found in muddy water, gutters, or in water which is contaminated by urine. Type of leeches The leeches are classified in to non-poisonous and poisonous. The poisonous leeches are lives along within frog and other water animals. They are comparatively bigger in size and darker in colour. After the application they produces severe pain, itching or allergic reaction

In Siddha system of medicine, the leeches are classified into three types (non-poisonous leech, poisonous leech and normal leech). Non-poisonous leeches are further classified into four class (class Iwhite with light golden colour, class II- colour like of Senkaluneer, class III- coral like colour and rice sized, class IV- green or lemon colour). Poisonous leeches are Black, blackish-red, and rainbow like multicoloured. Normal leeches are golden-colour with block.

Morphology of leech

The leeches are segmented worm. Fully matured adults can be up to 20cm in length. Its colour is green, brown or greenish brown with darker tone on the dorsal side and lighter on ventral side. It has two suckers, one at each end called anterior and posterior sucker. The anterior sucker is used for feeding.

Maintenance and storage of leech

The leeches are stored in well labelled container having multiple pores on the top for proper aeration. The temperature should be maintained around 5-27 ^{0}C, the water of the container should be pure and de -chlorinated and should be replaced once in 3 days. The place should be darker and ventilated

Benefits of leech therapy

According to Siddha system of medicine Leech sucks impure blood from our body, so it is used to detoxify the blood and neutralise the vitiated Thrithodam.

Important point in leech therapy

One session of leech therapy requires about 1-2 hrs and about 1-6 leeches are required depending upon the clinical condition. It leaves Y-shaped bite mark and it is disappears within 23weeks.Symptoms of excessive blood loss are red skin, itching, pain and fever. The leeches should be suck only impure blood, when leeches start to suck pure blood produces the symptom of pricking pain and itching at the site of the bite.

Selection of leeches for leech therapy

Non-poisonous are only used. Too small or too long leeches are not to be preferred, only medium sized leeches are used.

Frequency of leech therapy

It varies according to the severity of diseases; generally, it should be applied once in a week.

Precaution during leech therapy

The patients with bleeding disorders like haemophilia, highly infective patients like HIV patients and hepatitis B patients are not advised for leech therapy. The leeches used for one person are not used for another person to avoid cross infection. The therapy should be done with proper disinfecting condition. Complication of infection were occurs only in 2-36% of patients. There are no reports of leech transmitted diseases in leech application.

Complication of leech therapy

The most important complication is the risk of leech borne infection caused by bacterias aeromonas hydrophilia present in the leech gut, which may cause pneumonia, septicaemia or gastroenteritis. Allergic reaction may occur in leech site. Ulcerative necrosis may occur due to toxins present in leech saliva. Prolonged bleeding and rarely

ulcer formation may occur at the site of bite. Excessive bleeding that may require a blood transfusion is another complication in leech therapy.

Disposal of leech

The used leech should be destroyed with 70% of alcohol and disposed like that of biomedical waste.

Mechanism of action

In Siddha system of medicine the leech therapy was used as one of the bloodletting technique to remove the toxic blood from the body. According to Siddha concept, the leech application works on the basis of normalisation of Uyirthathukal by removing toxic blood from the body and cure the diseases. Leech therapy was used for various diseases especially for Pitham vitiated diseases, because the leech has Thatpa Gunam (Cold potency).

The apparent benefits of leech therapy are that they help relieve venous congestion by removing excessive collective blood physically from congested tissue. From modern concept, as proved by various research studies, the efficacy of leech therapy is not only in the amount of blood that the leech ingested, but it is also by leech saliva which contains more than 100 biological active compounds which cause effect of leech therapy. The salivary glands secretion has analgesic, anti-inflammatory, bacteriostatic activity. It also have resolving activity, eliminate the microcirculation disorders, restore the vascular permeability of tissue and origins, reduce the blood pressure, eliminate the hypoxia, increase the immune system activity, detoxifies the organism by antioxidant pathway, and improve the bioenergetics status of organism. This active compound includes anticoagulant Hirudin, Calin, inhibitor of kallikrein, hyaluronidase, histamine like vasodilators, collagenase, analgesic, anti-inflammatory substance, destabilase, hirustasin, tryptase inhibitor, Eglin, acetylcholine, carboxypeptidase A inhibitors, immune-modulator effect, etc.

Hirudin is responsible for anticoagulant of blood and it is used as anticoagulant in surgical procedure. Calin is also anticoagulant substance but it is responsible for secondary bleeding for approximately 12 hours in leech bite site. Hyaluronidase is facilitating the penetration and dilution of pharmacologically active substances into tissue, particularly in joint pain and also has antibiotic activity. Destabilase is dissolves fibrin and has thrombolytic effect. Hirustasin inhibit strypsin, kallikrein, chymotrypsin and neutropholic cathepsin. G.Bdellins has anti-inflammatory effect and inhibits trypsin,

plasmin and acrocin. Chloromycetin is potent antibiotic. Eglin is anti-inflammatory and inhibits the activity of alpha-chymotrypsin, chymase, subtilisin, elastase and cathepsin. Factor X an inhibitor inhibits the activity of coagulation factor X.Aesthetic-like substance reduces pain during biting by a leech. Acetylcholine is vasodilator. Collagenase reduces collagen and carboxypeptidase A inhibitors increases the inflow of blood. Histamine like substances cause dilatation of blood vessels and produce bleeding. Some of the substances were also have antiinflammatory effect. On the basis of lipotropic activity it can be used for ischemic heart disease. The biological active compound present in leech saliva act on target organ through vein during sucking of leech and increase the blood circulation in the organ.

Indication for leech therapy in Siddha system of medicine

Traumatic oedema, tumour, abscess, sprain, uncontrolled vomiting, headache, abdominal and chest diseases, hepatomegaly, abdominal cramps caused by dysentery, whooping cough, eye diseases and joint swelling

Indication of leech therapy in Ayurveda

Abscess, lump, piles, skin diseases, sclerosis, throat diseases, eye diseases, cyst, tumour, filariasis, poisoning, pemphigus, headache, dental disorder, etc.

Indication for leech therapy in Modern medicine

In modern medicine, the leech therapy has been used and studied in cardiovascular diseases, cancer, diabetes, infection, arthritis, dental concerns, haemorrhoids, hearing loss, tinnitus, pain relief, post-plastic surgery, replantation and other reconstructive surgeries. Hirudo therapy is a safe, easy to use, beneficial and cost-effective treatment to save reattached body parts and flaps in reconstructive plastic surgery.

Indication for leech therapy in Unani medicine

The commonest indication of leech therapy in Unani medicine as mentioned in classic Unani text are varicose vein, blepharitis, painful calf muscles, mania, septic wounds, non-healing ulcer, lymphadenitis, inflamed organ, sinusitis, pharyngitis, piles, fistula in ano, elephantiasis, at the bite of poisonous animals, skin disorders, warts, chloasma, eczema, psoriasis, osteoarthritis, hypertension and vitiligo, etc.

Other indications

Arthrosis, peri arthritis, rheumatoid arthritis, thrombophlebitis, thrombosis, embolism, external ear and chronic ear diseases, eye diseases; including cataracts, glaucoma, traumatic injury and inflammation, dental diseases; like gingivitis, paradonitis and stomatorrhagia, GI tract; hepatitis, cholecystitis, pancreatitis, stomach ulcer, respiratory disorders; asthma, acute rhino pharyngitis, and coryza, gynaecological disorders, male and female sterility, endometriosis, and mastitis.

Contraindication of leech therapy

The leech therapy is contraindicated in Anaemia, pregnancy, allergic patients, in extreme cold and hot climate, bleeding disorders like haemophilia, children and old age people.

Sites which are not suitable for leech application mentioned in Siddha literature are testis, penis, breast, eyelid & other fleshy parts, pulsate part (Naadi Parkum Idangal).

Scientific papers on leech therapy

Presently various clinical and experimental studies have been conducted internationally to evaluate the efficacy of leech therapy in various diseases condition. The leech application has proved very valuable in microsurgeries and in various type of arthritis. Leech therapy reduces joint dysfunction, pain and stiffness in people with osteoarthritis of knee joint as reported by new study in the annals of internal medicine . A study from Kashmir valley has established the safety and efficacy of leech therapy in the management of frostbite. Another study from India proved the anti-inflammatory effect of leech therapy in psoriasis patient. Similarly, one more study from India has proved the leech therapy gives the significant relief for symptoms of eczema. The leech therapy improved incisional skin wound healing in rats. Recently, research is being conducted in various aspects to determine the effect of leech therapy in various ailments like gout, vitiligo, varicose vein, varicose ulcer, lupus erythematosis, thrombosed piles, burger's diseases, epidermoid cyst, arthrosis of the first carpo metacarpal Joint and many more.

MODERN ASPECTS

SKIN ANATOMY

INTRODUCTION:

The skin covers the entire external surface of the human body and is the principal site of interaction with the surrounding world. It serves as a protective barrier that prevents internal tissues from exposure to trauma, UV radiation, temperature extremes, toxins and pathogenic organisms like bacteria. Other important functions include sensory perception, immunologic reaction, thermo regulation and control of invisible fluid loss. The integrity has three layers

1) Epidermis
2) Dermis
3) Hypodermis

Epidermis

The epidermis is continually renewing, stratified, squamous epithelium that keratinizes and gives rise to derivatives structures called appendages. The majority of the cells in the epidermis are the keratinocytes. It has 5 layers. They are from above downwards

1) Stratum corneum
2) Stratum lucidum
3) Stratum granulosum
4) Stratum spinosum
5) Stratum germanativum

Keratinocytes

The stratum germinativum or the basal layer is immediately superficial to the dermoepidermal junction. As keratinocytes divide and differentiate, they move from this deeper layer to the more superficial layers. Once they reach the stratum corneum, they are fully differentiated keratinocytes devoid of nuclei and are subsequently shed in the process of epidermal turnover.

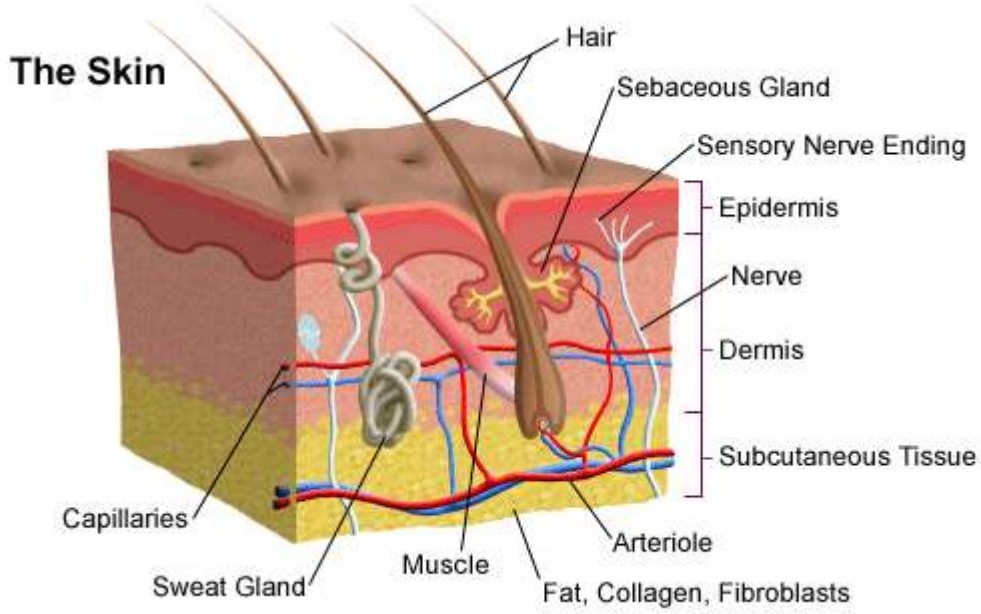
Melanocytes

Melanocytes derived from neural crest cells. Its primarily function is to produce a pigment melanin which absorbs radiant energy from the sun and protects the skin from the harmful effects of UV radiation. Melanin accumulates in organelles termed

melanosomes. Sun exposure makes melanocyte stimulating hormone (MSH), adreno cortico tropic hormone (ACTH), estrogens and progesterones stimulate melanin production. With aging, a decline is observed in the number of melanocytes populating the skin of an individual. Since these cells are of neural crest origin, they have no ability to reproduce.

Langerhans cells

Langerhans cells originate from the bone marrow and are found in the basal, spinous and granular layers of the epidermis. They serve as antigen- presenting cells. They are capable of ingesting foreign antigens, processing them into small peptide fragments, binding them with major histocompatibility complexes and subsequently presenting them to lymphocytes for activation of the immune system.



Dermis

The dermis is formed by connective tissue having fibers and ground substances. It varies in thickness about 0.3mm on the eyelid and 3.0mm on the back. The dermis can be divided into an upper papillary dermis that consists of loose connective tissue containing capillaries, elastic fibers, reticular fibers and some collagen and the deeper reticular dermis recognized by the thicker, aggregated bundles of collagen. Collagen and elastic fibers are synthesized by fibroblasts. Collagen contributes about 70% of the dry weight of the dermis and is the most common protein in the body. It serves as major structural element of skin and has remarkable tensile strength. Ground substances is an

amorphous material that consists mainly of water, electrolytes, proteins and mucopolysaccharides. These following structures lying in the dermis.

1) Epidermal appendages
2) Blood vessels and lymphatics
3) Nerves muscles
4) Cells – mast cells, fibroblasts, pericytes, etc.,

Dermo-epidermal junction

It is the basement membrane zone that welds the epidermis to underlying dermis. This junction is undulated, forming dermal papillae and rete ridges.

Epidermal appendages

1) Pilosebaceous unit
2) Sweat glands
3) Nail unit

Pilosebaceous unit

It consists of a hair follicle containing hair and sebaceous glands opening into follicular canal of hair follicle. Sebaceous gland are lipid secreting holocrine glands. They are distributed all over the body except the palm and soles with their maximum density in seborrheic area of the body hair structure consists of cuticle, cortex, and medulla. These keratinous fibers are of two types in adults. Terminal hairs are thick, pigmented and long and are seen on the scalp, eyebrows, axillae, genital areas, etc., vellus hairs are small in diameter, short and nonpigmented and therefore difficult to discern.

Sweat glands

There are 2 types of sweat glands

1) Eccrine glands
2) Apocrine glands

Eccrine glands

These are merocrine glands with tubular structures, which open onto the skin directly. Sweat glands are present on the entire surface of the body except the lip, external ear canal and labia minora and are most abundant on the palms, soles, forehead and axillae.

Apocrine glands

These tubular glands consist of two main parts the coiled secretary gland and the straight excretory duct which opens into the follicular canaljust above the openings of sebaceous glands. They are distributed along the mammary line eg. Axillae, areolae, periumbilical area, mons pubis and genital and peri anal areas.

Nail unit

It is yet another epidermal appendages. It consists of nail matrix just underneath the proximal nail fold which gives rise to nail plate a keratinized structure. The distal portion of the nail matrix is visible usually in thumbnail as nail bed and is bounded on two sides by lateral nail fold

Cutaneous Blood supply

Cutaneous vessels ultimately arise from underlying named source vessels. The cutaneous vessels originate either directly from the source arteries or as terminal branches of muscular vessels. Cutaneous vessels ultimately anastomose with other cutaneous vessels to form a continuous vascular network within the skin.

Lymphatics

Skin lymphatics parallel to the blood supply and function to conserve plasma proteins and scavenge foreign material, antigenic substances and bacteria. These unvalved superficial dermal vessels drain into valved deep dermal and subdermal plexuses, then coalesce to form larger lymphatic channels which ends in internal jugular vein junction bilaterally.

Skin Innervation

Merkel cells of the epidermis Meissner corpuscles detect light touch. Pacini corpuscles are specialized to detect pressure. Pain is transmitted through naked nerve endings and Krause bulbs detect cold, whereas Ruffini corpuscles detect heat. Cutaneous nerves follow the route of blood vessels to the skin.

Physiology of skin

1. Protection - self and body
2. Sense organ
3. Secretion and excretion
4. Body temperature regulation
5. Storage of fat, blood

6. Absorption
7. Gaseous exchange

Skin phototype

The amount of melanin pigment in the skin determines an individual's skin color. Skin pigment can be inherited genetically or can be acquired through various diseases. Hormonal changes during pregnancy can also vary the amount of pigmentation.

Anatomy of Aging Skin

Age associated skin changes include thinning, skin laxity, fragility and wrinkles. Sun exposed areas demonstrate additional aging changes including depigmentation, premature wrinkling, telangiectasia and actinic elastosis.

Embryology

The whole of skin epidermis and dermis is a unified integrated organ system, but it develops from two different primitive embryonic layers - epidermis from the ectoderm and dermis from the mesoderm.

ECZEMA

DEFINITION:

Eczema is a non - contagious chronic skin disease which is characterized by erythema, scaling, oedema, oozing and vesiculation. The word eczema seems to have originated from the Greek word 'ekzein' meaning "to boil over" or "to effervesce". Dermatitis comes from the Greek word for skin – and both terms refer to the same skin condition. Eczema is an inflammatory skin reaction characterized histologically by spongiosis with varying degree of acanthosis, and a superficial perivascular lymphohistiocytic infiltrate. The clinical features of eczema may include itching, redness,scaling and clustered papulo-vesicles. The condition may be induced by a wide range of external and internal factors acting singly or in combination. The term dermatitis and eczema are generally regarded as synonyms still some authors use the term dermatitis to include all types of cutaneous inflammation. Not all dermatitis is eczematous.

HISTORY:

The term "atopic dermatitis" was coined in 1933 by Wise and Sulzberger

EPIDEMIOLOGY:

Eczematous diseases are very common with an estimated prevalence of more than 10% in the general population. According to health statistics 15-25% of all dermatological patients suffer from eczema. Globally eczema affected approximately 230 million people as of 2010 (3.5% of the population). In India low prevalence in northern and eastern part of country (0.42-0.55). ISSAC (International Study Of Asthma And Allergies In Childhood) shows prevalence between 2.4% - 6%. Regarding contact dermatitis in general population the sufferes are more than 1% and in construction workers more than 45%. For the age group 6 to 7 years, the prevalence of current eczema ranged from 0.9% in India.

AETIOLOGY:

The causes of eczema are unknown. Effective eczema management requires a combination of prevention and treatment. In addition to preventing eczema flare-ups by minimizing any known triggers, treatment is also an important part of eczema management. Basically, two factors cause dermatitis and eczema.

- Allergic or sensitive skin.
- Exposure to an irritant.

The dermatologist Darier has said that, "There is no eczema but an eczematous patient". The general predisposing causes are Age, Genetic and familial predisposition, General debility, Climate, Psychological stress, Local Factors, Food as allergens.

Age

Eczema sometimes occurs in infancy, at puberty and at the time of menopause.

Genetic & familial predisposition

There is usually a personal or family history of allergy, viz asthma, eczema and hay fever.

General debility

Lowering of resistance of the individual in general debility predisposes to eczema.

Climate

Climate extremes like heat and severe cold.

Psychological stress

Local factors

- Xeroderma or ichthyosis, greasy skin, hyperhidrosis, varicose veins.
- Direct contact with pet and domestic animals.
- The frequent use of soaps and cleaning products that tend to affect the shiny nature of the skin.

Food as allergens

Animal sources

- Cow's milk, Egg white is the allergising factor, any species of fish, meats of all kinds can be responsible for allergic reactions.

Plant sources

- Wheat flour – allergic reaction due to wheat gluten.
- Peas, beans and lentils,consumption of edible mushrooms ,vegetables such as brinjal, carrot, spinach, cabbage, onion, garlic, sweet potato, cauliflower and pumpkin cause allergy in some individuals.
- Among the fruits, strawberries, bananas, oranges, grapes and apples are the principal offenders. Occasionally by pears, cherries, plums, gooseberries, Citrus fruits and tomatoes may cause atopic allergy.

Cosmetics

Common ingredients in cosmetics such as perfumes, facecreams, deodorants, hair dye, shampoos, parabens, benzocaine, lanolin, thimersol, etc.

Clothing

Rubber chappals, spectacle, resins, frames, furs, nylon, synthetic dyes. Most buttons of formaldehyde resins, epoxy resins are all common sensitizers.

Medicaments

This include Sulphonamides, Penicillin, Streptomycin, Cocaine, Tincture benzoin, Neomycin, Furacin, Phenargan cream & sticking plaster etc. Dettol, savlon, cetavlon are primary irritants.

INDUSTRIAL AND OCCUPATIONAL AGENTS:

- Agriculturists - Plants, weeds, fertilizers, oils.
- Automobile - Oil, petrol, solvent, grease, paints, thinner.
- Building workers - Cement, lime, paints, insecticides,kerosene oil.
- Chemical,Pharmaceutical industries - Dyes, Chemicals, explosives, solvents, disinfectants, detergents
- Housewives - Soaps, detergents, vegetables, fruits, nickel, polishes, artificial flavours, dyes, flowers.
- Nurses and Doctors - Iodine, streptomycin, chlorpromazine, tincture.
- Painters - turpentine, paints, detergents
- Plastic factory workers - Resins, hardeners, solvents, glass, cellulose
- Rubber workers - T.M.T, M.B.T, dyes, glues, oils
- Tannery workers - Chromate, arsenic, alkalies, acids.
- Textile workers - Formaldehyde, solvents, dyes, bleaches.

Scratching, Chemical trauma, Climate, Stress and Strains keep the process going with the result that eczema becomes chronic. In practice mixed eczemas are much more common than pure entities. History and clinical observation are very important in establishing the exact etiological diagnosis.

IMMUNOLOGY:

Immunology deals with the body's response to antigenic challenge. Sensitization develops when a different clone of T-lymphocytes is activated. The sensitized T-lymphocytes yield two sub populations of lymphocytes.

1. Memory cells those are responsible for the persistence of contact allergy.
2. Efferent cells that initiate the allergic response when appropriately challenged.

Allergy & hypersensitivity

The body behaves in a particular way when it is exposed to a chemical substance known as 'Allergen' for the first time, but changes the nature of its reaction when it is exposed for the second and subsequent times. This change is due to proteins known as antibodies. The moment, the allergen IgE combination stimulates the mast cells which

unload their chemical contents into the surrounding tissues. These chemicals (mediators of allergy) cause the manifestations of allergy such as erythema, wheal and flare reaction. Flare is due to dilatation of arterioles by local axon reflex and the liberation of vasodilator substances like histamine and its byproducts like serotonin, bradykinin, acetylcholine from the injured cells like mast cells and basophils etc. The manifestation of hypersensitivity may be immediate (or) delayed type.

Cutaneous Allergy

In the skin two important but different allergic reactions occur.

Dermal reaction

- Dermal reaction is commonly seen in urticaria. Allergic reaction takes place in the dermis. Intra dermal tests (scratch) show reactivity.
- The causative antigen reaches the skin through ingestion, inhalation or injection of protein substances and the reacting antibodies circulate in the serum.

Epidermal reaction

- It is seen in allergic dermatitis or eczema.
- The causative substance reaches the skin by contact. Intra dermal allergic tests are negative, but patch test shows reactivity
- Allergen + Epidermal protein – Antigen formation (probably in lymph glands)
- Allergen + Antibodies – Eczematous reaction (In epidermis)
- A severe local reaction may result in auto-intoxication & dissemination of eczematous reaction to distant parts.

Status Eczematicus

It is believed that in case of severe allergic states, a state may develop when the patient becomes hypersensitive to even unrelated substances resulting in status eczematicus comparable to status asthmaticus in practice of internal medicine.

Reaction time

It is the time taken by a sensitized individual to manifest a clinical reaction following contact with a known sensitizer. It is usually 12-24 hours but may vary from one hour to 120 hours.

Dissemination reaction

It is a fleeting erythematous macular reaction involving the face and flexures, seen in some cases of contact dermatitis. It is caused by the escape of lymphokinins in the circulation resulting in vasodilatation at distant site.

Flare reaction

In contact dermatitis, reaction of a previously healed site of a contact dermatitis reaction or a positive patch test reaction followed renewed challenge or exposure to the same allergen at another site. This is because of persistence of sensitized lymphocytes of the site of earlier reaction, which react to minute amounts of antigen that sometimes escape into the circulation from the new site and find its way to the old site. Langerhans cells are responsible for antigen processing in contact allergy.

Histopathology of eczema

The histopathological features of eczema reflect dynamic sequence of changes resulting in inflammation of the epidermis and vary the indulging dermal structures. These vary with the intensity and stage of eczematous process and are frequently modified by secondary events such as trauma and infection.

Spongiosis is an intercellular epidermal oedema that leads to stretching and eventual rupture of the intercellular attachments with the formation of vesicles. Increased epidermal meiotic activity leads to acanthosis, but if spongiosis is intense disintegration of the suprapapillary epidermis may cause clefts to form exposing the underlying dermis.

In the sub acute stage, spongiosis diminishes and increasing acanthosis is associated with formation of a parakeratotic horny layer. This often contains layers of dried up serum and pyknotic nuclei of inflammatory cells. Later the ridges become elongated and broadened and hyperkeratosis replaces (arakeratosis). The changes are then those of lichenification.

The infiltrate is predominantly lymphocytic, through polymorphs and eosinophils are particularly common in eczematous dry eruption. In the presence of infection, polymorphs may invade the epidermis.

Clinical Features

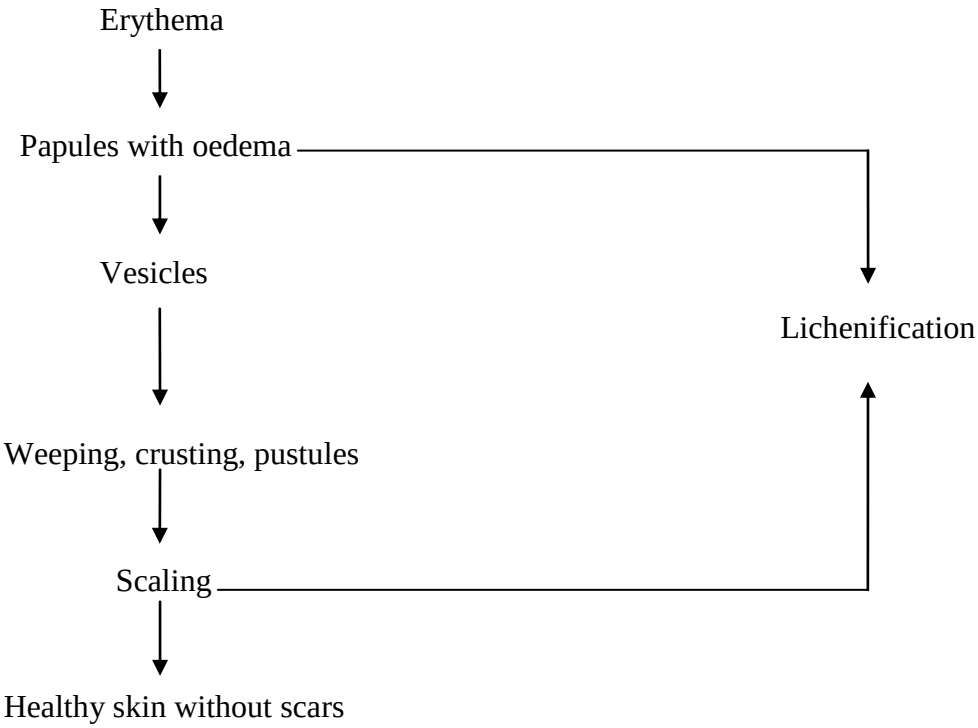
Eczema is characterized by superficial inflammatory edema of the epidermis associated with vesicle formation. Itching varies from mild to severe paroxysms which may even interfere with work and sleep. It can differ in severity, frequency and duration

among individuals. Flare-ups, however, can be unpredictable throughout lifetime.

Skin areas affected by eczema can exhibit a variety of characteristics including:

- Blistering
- Darkening of the area of skin affected by eczema (hyperpigmentation)
- Dryness
- Flaking
- Inflammation (swelling, irritation and warmth)
- Scaling
- Small red bumps
- Thickening of the affected skin due to frequent scratching. Scratching the area affected by eczema generally does not relieve the itching and can lead to increased inflammation, more intense itching, and harder scratching.

DEVELOPMENT OF SIGNS AND SYMPTOMS IN ECZEMA



TYPES:

Acute Eczema:

Acute eczema is accompanied by exudative erythema, edema, and sometimes vesicles. It is newly produced eczema ,only several days after its onset. Intercellular edema (spongiosis), intense dermal edema, and inflammation occur.

Sub acute Eczema

Sub acute eczema has a severity between that of acute and that of chronic. Such eczema is accompanied by erythema and edema, and it is slightly lichenoid. Mild edema is produced in the epidermis. Acanthosis and parakeratosis are observed.

Chronic eczema

Chronic eczema is characterized clinically by lichenification. When acute eczema continues for more than one week after onset, it is likely to appear lichenified, and the diagnosis is chronic eczema. Acanthosis and parakeratosis are noticeable histopathologically. However, there is less infiltration of inflammatory cells into the epidermis than with acute and subacute eczema.

CLASSIFICATION

- Contact dermatitis
- Atopic eczema
- Seborrhoeic eczema
- Nummular eczema
- Asteatotic eczema
- Stasis eczema
- Autosensitization dermatitis
- Wiskott-Aldrich syndrome

1. CONTACT DERMATITIS

Contact dermatitis is localized to the site of extrinsic stimulation by foreign substance or allergic reaction. Eczema reactions such as reddening and blistering occur at the contact site.There are specific types of contact dermatitis, such as diaper dermatitis and housewive's hand eczema. The causative substances include certain plants, chemical agents, and nickel, mercury and other metals.

Clinical features

Erythema, serous papules, vesicles, erosions and crusts are localized at the contact site of the causative agent. The eczematous lesions are relatively sharply circumscribed and are intensely itchy. Although only localized areas are affected, erosive lesions may become widespread when the causative agent is spread by rubbing and scratching. If the inflammation spreads over the entire body, systemic symptoms such as

fever may arise. When the causative agent is highly stimulative, it may cause necrosis of the skin and ulceration.

Pathogenesis

Allergic contact dermatitis basically occurs as a type IV allergic reaction. The causative agent invades the body percutaneously and is captured by Langerhans cells. It moves to the regional lymph nodes and transmits information about the antigen to thymus derived T cells, and they proliferate in the lymph nodes. If the causative agent reinvades the body after sensitization, the sensitized T cells become activated to release various cytokines, which leads to a prompt inflammatory reaction that causes dermatitis. This reaction is not produced by the first contact, but it is produced in previously sensitized persons even by contact with a minute amount of the antigen.

2. ATOPIC DERMATITIS

Atopic dermatitis is chronic eczema/dermatitis caused by an atopic condition (allergic asthma, rhinitis, conjunctivitis). Exudative eczema occurs on the face and ear pinna. It is characterized by eruptions of dry pityriatic scales. The patient tests positive for white dermographism.

Atopic dermatitis is classified into three age periods: infantile (age 2 months to 4 years), childhood (early childhood to puberty), and adolescent/adult.

A) Infantile atopic dermatitis

In the early stage of atopic dermatitis in infancy, erythema, scales, and serous papules are produced on the head and face and these gradually spread to the trunk. The condition becomes exudative: erosions form with crusts and scales attached to the surface. It resembles seborrheic dermatitis. Thick crusts on the head and ear notch, and lesions around the mouth and lower jaw are also observed. The trunk and extremities become dry, and follicular papules aggregate, appearing as goose bumps. Scaly erythematous plaques form on these lesions and progress to childhood atopic dermatitis.

B) Childhood atopic dermatitis

In childhood atopic dermatitis the skin becomes dry. Lichenified plaques occur on the cubital fossa and popliteal fossa. Cracks are often found in the auricle area (ear notch). Multiple follicular papules occur on the dry skin of the trunk. This dermatitis is accompanied by intense itching, and it progresses quickly to eczematous crusty lesions.

C) Adolescent and adult atopic dermatitis

The symptoms are similar to those in childhood dermatitis, but the lichenified plaques progress and enlarge. Rough, dry, dark brown atopic dermatitis occurs all over the upper body. The lesions are more severe and widely distributed than those of childhood dermatitis. Thinning of one-third of the lateral eyebrow is present. In serious cases, diffuse erythema occurs on the face, and a mottled appearance is seen on the neck and upper chest (poikiloderma lesion, dirty neck). Atopic prurigo may occur repeatedly on the extremities.

Pathogenesis

A defective skin barrier is important for the pathogenesis of atopic dermatitis. Filaggrin gene mutations have been shown to be a key predisposing factor for atopic dermatitis. Dyshidrosis and decreased content of lipid in the horny cell layer, facial pallor, dry skin and multiple small follicular papules are present (atopic skin). The atopic skin is vulnerable to extrinsic irritation; intensely itchy eczema is easily produced by slight irritation, or even by perspiration or contact with animal fur, wool or chemicals.

Immune function abnormality:

Atopic conditions such as allergic asthma, allergic rhinitis, conjunctivitis and atopic dermatitis are found in the family and patient's history. Patients with atopic dermatitis readily produce IgE antibodies. There is a high IgE value and positive intracutaneous reactions to various allergens.

3. SEBORRHEIC DERMATITIS

Seborrheic dermatitis occurs on sites of skin where sebum is actively secreted. It is characterized by erythematous lesions accompanied by yellowish scales. This is one of the most common skin diseases, occurring in infants, adolescents and adults. Pityrosporum fungus resident in the skin is a factor in the occurrence.

Clinical features

There is some controversy as to whether seborrheic dermatitis in infants, adolescents and adults is the same disease, because there are minor differences in the clinical courses. Dermatitis appears as follicular eczema on seborrheic sites or intertriginous areas in the head, face, axillary fossa, neck and external genitals. The main features of the lesions are oleaginous scales and erythematous plaques that may be slightly itchy.

In infants, yellowish crusts begin to form on the scalp, eyebrows and forehead. In infants, scaly erythematous plaques may also form 2 to 4 weeks after birth. In most cases they resolve 8 to 12 months after birth. In adolescents and adults, pityroid scales increase and scaly erythematous lesions form on the eyebrows and nasolabial groove. Seborrheic dermatitis is chronic and recurrent.

Pathogenesis

Triglycerides in sebum are decomposed by microbes resident in the skin to produce free acid. The free acid reacts to cause seborrheic dermatitis. It has been reported that over proliferation of Pityrosporum fungi such as Malassezia furfur aggravates seborrheic dermatitis.

4. NUMMULAR ECZEMA (ECZEMA NUMMULARE)

Round, relatively large eczematous plaques are produced. Nummular eczema may occur at any site on the body, and it tends to progress to autosensitization dermatitis.

Clinical features

Nummular eczema is frequently seen in the winter. Multiple round eczematous lesions occur, mostly on the extremities (particularly on the extensor surface of the lower extremities), trunk, hips and buttocks .At the periphery of the lesions, serous papules aggregate, in the center of which exudative erythema is produced with scales on the surface. Most cases are accompanied by intense itching and multiple scars from rubbing and scratching. As the lesions progress, they may produce dispersal eruption to progress into autosensitization dermatitis.

Pathogenesis

Scratched insect bites may develop urticarial lichens that, when rubbed, progress to nummular eczema, or nummular eczema may result from asteatotic eczema in the elderly, or it may appear as a symptom of atopic dermatitis.

5. LICHEN SIMPLEX CHRONICUS

Synonyms: Lichen Vidal, Circumscribed neurodermatitis

Lichen simplex chronicus is chronic eczema in which round, intensely itchy lichenified plaques form on the nuchal region and extensor aspect of forearms and lower legs of middle-aged women. Pigmentation or depigmentation is present in many cases. Warty eruptions may proliferate. When skin is repeatedly stimulated by the friction of

clothing or by metal allergens and the site is rubbed and scratched for a long period of time, it leads to the occurrence of chronic eczematous lesions.

6. AUTOSENSITIZATION DERMATITIS

Multiple small papules and erythematous lesions accompanied by itching occur systemically. They are caused by sudden aggravation of a localized lesion. This dermatitis is caused by endogenous allergic reaction.

Clinical features

Reddening, swelling and acute aggravation of exudation occur in the lower extremities as primary lesions of autosensitization dermatitis (in 50% to 60% of cases). Two weeks to several weeks after acute aggravation of reddening, swelling and exudation, dispersed eruptions appear. In most cases, the eruptions are erythema, papules, serous papules, or pustules of 2 to 5 mm in diameter dispersed symmetrically on the extremities, trunk, and face. These are often accompanied by intense itching. Systemic symptoms such as fever and fatigue may occur.

Pathogenesis

Autosensitization dermatitis arises from endogenous allergic reaction. Decayed proteins, bacteria, fungal components, and toxins produced by injured tissues in a primary lesion are considered to be the antigens. These may spread through the entire body such in blood flow from the primary lesion, or they may spread by rubbing or by an accidental dose of the causative substance (orally or intravenously). Autosensitization dermatitis is caused by sensitization against the antigens. The primary lesions can be nummular eczema, stasis dermatitis, contact der-matitis, atopic dermatitis, tinea pedis, or eczematization of a burn.

7**. STASIS DERMATITIS**

Edematous erythema or eczematous plaques form on the lower thighs as a result of varicose veins or congestion in the lower extremities. This disease tends to affect those who work standing, the elderly, and obese women. It may progress to autosensitization dermatitis.

Clinical features

Edematous erythema occurs on the lower third of the leg, particularly at the upper ankles. The site gradually presents a dark red, scaly, eczematous plaque, pigmentation or whitish atrophie blanche. Minor trauma may induce ulceration. Treatments for stasis

dermatitis may induce allergic contact dermatitis as a complication, from the application of an antiseptic or a topical agent. Aggregated serous papules often progress to autosensitization dermatitis.

Pathogenesis

Congestion in the cutaneous blood vessels is caused by impairment of venous outflow, which leads to bleeding from the capillary vessel loop in the dermal upper layer. Hemosiderins deposit in tissues, and the skin takes on a blackish-brown appearance. The keratinocytes are injured by further impairment of blood flow. Atrophy and scaling occur in the epidermis and there is tendency of ulceration. The skin looses its function as a barrier and becomes more reactive to extrinsic irritation, leading to eczematous lesions in many cases.

8. ASTEATOTIC ECZEMA

Skin dryness (asteatosis, xerosis) occurs when sebum decreases as a result of aging or excess washing. When the horny cell layer is destroyed, the skin is vulnerable to extrinsic irritation. When asteatosis becomes inflamed and eczematous, the condition is called asteatotic eczema. This mostly affects the lower extremities of elderly in dry seasons, especially winter. For those who have a habit of excessively washing or rubbing the body with a towel, lifestyle guidance to avoid such behavior has therapeutic effects. Use of moisturizer prevents skin dryness.

9. WISKOTT-ALDRICH SYNDROME

The three major characteristics of this disorder are immunological deficiency (T-cell dysfunction), thrombocytopenia, and intractable eczema. It is hereditary (X-linked recessive). There are decreased levels of immunoglobulins. Bone marrow transplantation may be performed.

Clinical features

Wiskott-Aldrich syndrome is characterized by eczema or purpura that occurs in newborn babies within 6 months after birth. The eczema that occurs on the head, face, buttocks and extremities appears similar to atopic dermatitis and seborrheic dermatitis. Purpura is caused by thrombocytopenia. Immune-deficiency-derived infections occur repeatedly as the patient grows. Infections are caused by various factors including bacteria viruses, fungi and protozoa. Impetigo contagiosa (Staphylococcal infection), pseudomonas infection, herpes simplex, varicella (herpes virus infection), and

candidiasis are particularly likely to accompany this syndrome, and they tend to become aggravated and persistent. Systemic symptoms such as bloody diarrhoea, internal organ hemorrhage, infection (e.g. tympanitis, paranasal sinusitis, pneumonia) are seen recurrently.

INVESTIGATIONS OF ECZEMA:

Patch test

Patch tests detect type IV (delayed or cell-mediated) hypersensitivity. It is common practice for a battery of around 20 common antigens, including common sensitizers such as nickel, rubber and fragrance mix to be applied to the skin of the back under aluminium discs for 48 hours. The sites are then examined for a positive reaction 24 hours later and possibly again a further 24 hours later. The positive test is revealed by the development of an eczematous patch with erythema swelling and vesicles at the site of application.

Patch test reaction is graded in the following degrees,

+	-	Only redness
++	-	Marked redness and swelling
+++	-	Marked redness, swelling and papules
++++	-	redness, oedema and vesicles

Specific IgE

Specific IgE levels to antigens can be measured in serum by a specific radio allergic sorbent test (RAST). These are occasionally performed to support diagnosis of atopic eczema and to determine specific environmental allergens, eg. pet dander, horse hair, house dust mite, pollens and foods.

Prick tests

Prick tests are a way of detecting cutaneous type I (immediate) hypersensitivity to various antigens such as pollen, house dust, mite or dander.

Bacterial and viral swabs for microscopy and culture

These are useful tests in suspected secondary infection skin swabs for bacteriological assessment will invariably reveal the presence of bacteria. In the case of recurrent impetigo in a child with atopic eczema, bacterial swabs should be taken from carrier sites (axillae and groin) from both the affected individual and house hold members.

ASSESSMENT TOOLS :

1. **EASI score**

An EASI score is a tool used to measure the severity and extent (area) of atopic eczema (**E**czema **A**rea and **S**everity **I**ndex).

Body regions

There are four body regions:

1. Head and neck
2. Trunk (including genital area)
3. Upper limbs
4. Lower limbs (including buttocks)

Area score

Area score is recorded for each of the four regions of the body. The area score is the percentage of skin affected by eczema.

Area score	Percentage of skin affected by eczema in each region
0	no eczema in this region
1	1-9%
2	10-29%
3	30-49%
4	50-69%
5	70-89%
6	90-100%, the entire region is affected by eczema

Severity score

The severity score is the sum of the intensity scores for four signs.The four signs are:

1. Redness (erythema, inflammation)
2. Thickness (induration, papulation, swelling - acute eczema)
3. Scratching (excoriation)
4. Lichenification (lined skin, prurigo nodules - chronic eczema)

The average intensity of each sign in each body region is assessed as none (0), mild (1), moderate (2) and severe (3). Half scores are allowed. The four intensity scores are added up for each of the four body regions to give subtotals A1, A2, A3, A4.

Calculation for area: Each of the body area scores is multiplied by the area affected (C1,C2,C3,C4)

Total score: The EASI score is C1 + C2 + C3 + C4.

Outcome results

MILD	0 - 7
MODERATE	7 - 21
SEVERE	21 - 50
VERY SEVERE	50 - 72

2. **The SCORAD index**

A = spread.../100

B = intensity.../18

C = subjective symptoms.../20

SCORAD calculation: A/5 + B/2 + C

1. Extent criteria

2. Intensity criteria

- Erythema : stage 1 / stage 2 / stage 3
- Edema / papulation : stage 1 / stage 2 / stage 3
- Oozing / crusting : stage 1 / stage 2 / stage 3
- Excoriation : stage 1 / stage 2 / stage 3
- Lichenification : stage 1 / stage 2 / stage 3

3.Subjective symptoms

The two most representative items concerning the quality of life of patients are:

- Pruritus
- Insomnia

SCORAD is a clinical tool for evaluating the severity of atopic dermatitis in order to provide better management of patient.

Diagnosis for all eczemas

1. Nature of the lesions - size, shape, itching, number of papules, pustules, erythema etc.,
2. Distribution - sites of lesion
3. History of occupation
4. History of exposure to allergens ie Chemicals, plants, soap , etc.,
5. Personal and family history of such diseases - e.g atopic or allergic eczemas
6. Climate - eg: Dyshidrosis occurs at the change of seasons particularly in spring, summer
7. Patch tests (allergy test) in allergic/ atopic eczemas
8. Biopsy in rare cases when the lesions do not respond to treatment

PROGNOSIS OF ECZEMA:

Dermatitis and eczema are as rule curable conditions. Eczema are non infective except when they are inpetiginized and of the infective variety. They do not leave scars. The patient needs reassurance on these points. It must be remembered that epidermis is an ectodermal structure and so takes time to heal. Energetic treatment is to be strongly discouraged.

Acute eczemas heal readily in about 1 - 4 weeks with treatment. Chronic eczemas in which anatomical and functional changes set in take time to disappear. Disseminated and generalized eczemas are not only slow to heal, but are accompanied by ill health. Infantile and atopic eczemas are trouble and uncomfortable.

The former lasts till the age of twenty five or even though life. Its course is marked by spontaneous remissions and exacerbations. Psychogenic stresses climate extremes and poor health aggravate eczema. The cure of these conditions is retarded in tropical countries by heat, humidity and the prevalent unhygienic conditions.

GRADES OF ECZEMA:

A useful way to classify eczema is based on the degree of activity and the duration the eczema has been active.

1. **Acute**

Acute in medical language means of rapid onset. Often conditions that come on over a short period of time are also quite vigorous in their activity, although strictly

speaking acute should not be taken to be another word for severe. Acute eczema therefore would be an area that recently flared up and would be red, probably also have blisters and possibly some oozing or crusts.

2. **Chronic**

Chronic properly means long - standing. Once the initial phase of activity has died down a bit of skin that has been eczematous for a while is dry, scaly, thickened and cracked.

3. **Infected**

At any stage of eczema it can become infected. This won't always be obviously different from acute eczema unless there are pus filled blisters. With experience one can usually discern the golden crust of infection and pick up the other clues that suggest infection.

TREATMENT:

It consists of

- Reassuring the patient and his relatives about the disease being curable, non infectious and non scarring. Tactful bedside psychotherapy pays dividendsin all cases.
- Elimination of predisposing, exciting and complicating cause. In one individual, more than a single cause may be at play. To prevent recurrence, advice should be given to the patient regarding exposure to causes. Anyone suffering from contact eczema, for instance should be advised against any exposure to the possible sources of the causative allergens and allegro - immunologically related substances. Patients with infective eczemas are requested to treat infection by suitable antibiotic regarding the sources of infection. Improving the general state of nutrition is also important.
- Pallitative treatment must be properly carried out to effect a complete cure. Their life style should be strictly free from cosmetics.

PREVENTION:

People with eczema should not get the smallpox vaccination due to risk of developing eczema vaccinatum, a potentially severe and sometimes fatal complication.

COMMON TYPES OF ECZEMA

TYPES	SYNONYMS	FREQUENCY/AGE GROUP	REMARKS
Atopic dermatitis	Neurodermatitis, Infantile eczema, Besner's prurigo	Very common, mostly occur in infants and very young.	Cause unknown, but appear to be immunologically mediated.
Seborrhoeic dermatitis	Infectious eczematoid	Very common, all age groups.	Probably has microbial cause with over growth of normal skin flora being responsible.
Discoid eczema	Nummular eczema	Uncommon - mainly in middle aged individuals.	Cause unknown
Lichen simplex chronicus	Circumscribed neuro dermatitis	Quite common, mainly in young and middle aged adults.	Initial cause appears to be a localized
Eczema craguelee	Ateratotic eczema	Uncommon - restricted to elderly	Low humidity and vigourous washing seem responsible
Varicose eczema	Stasis dermatitis, Gravitational eczema	Common in the age group that has gravitational syndrome	Multiple causes, a common variety is allergic contact dermatitis to medicaments used
Allergic contact dermatitis	-	Common in all adult age groups same as the very old	Delayed hypersensitivity response to a specific agent
Primary irritant contact dermatitis	Occupational dermatitis, house - wives eczema	Very common in adult age groups same the very elderly	Both mechanical and chemical trauma responsible
Photosensitivity eczema	-	Not common - mainly in adults	Both photo toxic and photo allergic adults

-Roxburgh's common skin diseases - Ronald Marks

MATERIALS AND METHOD

PRIMARY OBJECTIVE:

To evaluate the therapeutic efficacy of "*Nilavaagai chooranam*" (internal) and "*Thengaai thylam*" (external) in the treatment of " *Karappan*" (Eczema) with and without leech therapy.

SECONDARY OBJECTIVE:

To study the Siddha basic principles towards effect of medicine and Leech therapy.

STUDY DESIGN:

Comparative clinical trial

STUDY PLACE:

Ayothidoss Pandithar Hospital,

National Institute of Siddha,

Tambaram Sanatorium, Chennai-47.

STUDY PERIOD:

18 months

NUMBER OF PATIENTS:

40 patients (20 patients withtrial drugs and leech therapy, 20 patients with trial drugs only)

TRIAL DRUGS:

Internal Medicine	**:**	*Reference: Aathma Ratchamirdhamenum Vaidhya Saara Sangirakam(Pg No:481)*
Dosage	:	1Gram (Thirikadi), twice a day
Adjuvant	:	Ghee
Duration	:	48days
External Medicine	:	*(Reference:BhogarAruliyaVaithiyaSaram-700 (*Pg No:143)
Duration	:	48 days
Dosage	:	Q.S

INCLUSION CRITERIA:

- Age: 20 – 65 years
- Sex: Both Male and Female
- Clinical features like Itching, Oozing, Erythema, Papules, Vesicles, Scaling and Hyperpigmentation
- Patients who are willing to undergo Leech application
- Willing to give specimen of blood for investigation whenever required.
- Willing to attend OPD or admission in IPD for 48 days.
- Willing to take photograph before and after treatment

EXCLUSION CRITERIA:

- Hypertension and other Cardiac ailments
- Narcotics
- Pregnancy and Lactation
- Evidence of any skin disease other than eczema
- Hemophilia
- Thrombocytopenia
- Hepatitis B
- HIV
- Renal Diseases
- Severe anaemia
- Immuno deficiency diseases

WITHDRAWAL CRITERIA:

- Intolerance to the drug and development of adverse drug reactions during drug trial.
- Poor patient compliance and defaulters.
- Patient unwilling to continue in the course of clinical trial.
- Any drastic changes occurring in haematological finding during treatment period.
- Increased in severity of symptoms
- Patient allergic to leech.

STANDARD OPERATING PROCEDURE:

Source of trial medicines:

The required raw drugs for the preparation of *Nilavaagai chooranam*(Internal) and *Thengaai thylam* (External) were purchased from a well reputed country shop in Parrys, Chennai and Gopala aasan shop, Nagercoil. The coconut for oil preparation was purchased from Anjugramam, Kanyakumari district. The raw drugs were authenticated by concerned department and they were purified as per Siddha literature and the medicine was prepared in Gunapadam laboratory of National Institute of Siddha.

Internal Medicine:Nilavagaai chooranam

Ingredients:

Nilavagaisamoolam(*Cassia senna* Linn.)	-	10 palam (350 grams)
Milagu(*Piper nigrum* Linn.)		
Kadukkai(*Terminalia chebula* Retz.)		
Thandrikkai(*Terminalia bellerica* Roxb.)		
Seeragam(*Cuminum cyminum* Linn.)		
Vaaluvai(*Celastrus paniculatus* Willd.)		
Sirunaagapoo(*Mesua ferrea* Kosterm.)		
Elam(*Elettaria cardamomum* Linn.)		
Ilavangapattai(*Cinnamom verum* Presl.)		
Kadugurogini(*Picrorhiza kurroa* Pennell.)	-	each ¼ palam (8.75 grams)
Sivadhai(*Operculina turpethum* Linn.)		
Thalisapathiri(*Taxus baccata* Mirb.)		
Jadhikkai(*Myristica fragrans* Houtt.)		
Kirambu(*Syzygium aromaticum* Linn.)		
Thippili(*Piper longum* Linn.)		
Chevviyam(*Root of Piper nigrum* Linn.)		
Indhuppu(*Sodium chloride*)		
Koogaineer(*Maranta arundinacea* Linn.)		
Chukku(*Zingiber officinale* Roscoe.)		
Senisarkarai(*Sugar)*	-	Equal amount for Chooranam

Purification of trial drugs:

Nilavaagai(*Cassia senna* Linn.*)*

Whole plant were cut into small pieces and dried it. Then it was boiled with milk and dried.

(Ref:Sarakugalin suthee muraigal)

Milaku(*Piper nigrum* Linn.)

Soaked it in fermented butter milk for 3 hours (1 saamam) and then dried it.

(Ref:Sigicha Rathna Deepam)

Kadukkai(*Terminalia chebula* Retz.)

Soaked it under vinegar and evacuate the yellow coloured water after that removed the seeds then dried the outer part well.

(Ref:Sarakugalin suthee muraigal)

Thandrikkai(*Terminalia bellerica* Roxb.)

Removed the nut and used the remaining part of the drug.

(Ref:Sarakugalin suthee muraigal)

Seerakam(*Cuminum cyminum* Linn.)

Removed the sand and other foreign particle and dried it under sunlight.

(Ref: Sigicha Rathna Deepam)

Vaaluluvai (*Celastrus paniculatus* Willd.)

Removed the dust particles and dried it well.

(Ref: Sigicha Rathna Deepam)

Sirunagappoo(*Mesua ferrea* Kosterm.)

Removed the foreign particles and dry it under sunlight.

(Ref:Sigicha Rathna Deepam)

Elam(*Elettaria cardamomum* Linn.)

Removed the foreign particles and dried it under sunlight.

(Ref:Sigicha Rathna Deepam)

Lavanka pattai(*Cinnamom verum* Presl.)

Dried under sunlight.

(Ref: Sigicha Rathna Deepam)

Kadugu rohini(*Picrorhiza kurroa* Pennell.)

Soaked in Neem leave juice for 3 hrs and dries it in sunlight.

(Ref: Sigicha Rathna Deepam)

Sivathai(*Operculina turpethum* Linn.)

Boiled with milk and then dried it well.

(Ref:Sarakugalin suthee muraigal)

Thalisapathiri(*Taxus baccata* Mirb.)

Dried in Sunlight.

(Ref:Sigicha Rathna Deepam)

Jathikkai(*Myristica fragrans* Houtt.)

Removed the external covering and cut it to small pieces then dried under sunlight.

(Ref: Sigicha Rathna Deepam)

Kirambu(*Syzygium aromaticum* Linn.*)*

Removed the foreign particles and dried it under sunlight.

(Ref: Sigicha Rathna Deepam)

Thippily(*Piper longum* Linn.)

It was fried and then used for trial drug preparation.

(Ref: Sarakugalin suthee muraigal)

Seveeyam(*Root of Piper nigrum* Linn.*)*

Removed the external coverings and dried under sun shine.

(Ref: Sigicha Rathna Deepam)

Indhuppu(Sodium chloride)

Soaked in kaadi for a period of 3days then dried in sunlight.

(Ref: Sigicha Rathna Deepam)

Kookai Neer(*Maranta arundinacea* Linn.)

Dissolved in pure water and filtered it, the process was repeated for 6 times then dried in sunlight.

(Ref: Sigicha Rathna Deepam)

Chukku(*Zingiber officinale* Roscoe.)

Soaked in lime stone water and peeled out the outer portion.

(Ref: Sarakugalin suthee muraigal)

Sarkarai(Sugar) (*Saccharumofficinarum*)

Grinded well and the fine particle was collected.

(Ref: Sigicha Rathna Deepam)

Method of preparation:

The raw drugs were dried and powdered separately, then mixed well together and then added with equal amount of white sugar and preserved**.**

External medicine:Thengaai thylam

Ingredients:

Coconut milk (*Juice of Cocos nucifera*)	-2 padi(2.6 litres)
Kalluppu (*Sodium chloride*)	-¼ palam(8.75gms)
Manjal *(Curcuma longa*Linn.)	-¼ palam(8.75gms)
Karunjeeragam (*Nigella sativa*Linn.)	-¼ palam(8.75gms)

Method of Preparation

Above three raw drugs were grounded and mixed with coconut milk and subjected to heat until it attained an oil consistency.

(Reference Book : *Bhogar Aruliya Vaithiya Saram- 700*(Pg No:144)

DrugStorage:

The trial drug *Nilavaagai chooranam* was stored in cleaned and dried glass bottles and *Thengaai thylam* was stored in cleaned and dried narrow mouthed bottles.

Dispensing:

The Powder was given in packet. Oil was given in pet bottles.

LEECH APPLICATION PROCEDURE:

SPECIES:

Hirudoventralis

SIZE:

Moderate size (2 to 3 inch)

NUMBER OF LEECHES TO BE USED PER SITTING:

1-6 leeches depending upon the lesion.

SITE OF LEECH APPLICATION:

Over the eczematous lesion.

NUMBER OF LEECH APPLICATION (SITTINGS)

4-6 times depending upon the region and severity of disease.

TIME INTERVAL BETWEEN THE TWO LEECH APPLICATIONS:

Seven days.

DURATION OF LEECH APPLICATION:

Upto the leech fall off or maximum period of one hour (morning session).

STANDARD OPERATING PROCEDURES:

APPLICATION OF LEECH:

The moderate sized, dark brown leeches were used for Leech application. The leech application was categorized into

1. Pre leech application procedure,
2. Leech application procedure,
3. Post leech application procedure.

PRE LEECH APPLICATION PROCEDURE:

The leeches to be used were purified with turmeric water and then with pure water. The site to be bite were cleaned with pure water.

LEECH APPLICATION PROCEDURE:

The leech was allowed to bite at the site of the lesion. If it not bite, pricking were done with sterile needle and allowed the leech to suck. Small gauze piece soaked in water was put on the leech for active sucking.

POST LEECH APPLICATION:

After the leech felled off spontaneously or induced, the turmeric powder was poured on the head portion and allowed to expel the blood. After vomiting, the leech were purified with turmeric water and then with pure water. The used leech was maintained in a separate labeled jar for that particular person during the study period.

The bitten spot were allowed to bleed for 5 minutes. Then dressed and compressed with turmeric powder dusted over aloe vera pulp.

The patients were observed for one hour and were educated about the bleeding condition.

The water in the leech preserved jar was changed once in three days.

SUBJECT SELECTION:

Patients reporting with symptoms of inclusion criteria were subjected to screening test and documented using screening proforma

TESTS AND ASSESSMENTS:

A. Clinical assessment

B. Siddha system of examination

C. Laboratory investigations

A. CLINICAL ASSESSMENT:

- Itching
- Erythematous lesions with edema
- Presence of macule / Papule / Vesicle / Pustule
- Oozing , scaling, lichenification of skin
- Hyper / hypopigmentation
- Appearance of new lesions
- Size of the lesions

B. **SIDDHA SYSTEM OF EXAMINATION**:

EnVagai Thervugal (Eight Types of Examination)

1. Naadi (Pulse Perception)
2. Parisam (Palpatory Perception)
3. Naa (Tongue)
4. Niram (Complexion)
5. Mozhi (Voice)
6. Vizhi (Eyes)
7. Malam (Bowel Habits)
8. Moothiram (Urine)
    a. Neerkuri
    b. Neikuri

C. LABORATORY INVESTIGATIONS

Haematology

Hb(gms%)

Total WBC Count (cells/cumm)

DC

Polymorphs (%)

Lymphocytes (%)

Eosinophils(%)

Monocytes (%)

Basophils (%)

Total RBC Count (cells/cumm)

ESR (mm/hr)

Bleeding Time

Clotting Time

Blood group & Rh typing

Clinical biochemistry

Blood sugar (Fasting & Postprandial)

Blood urea (mg/dl)

Serum creatinine (mg/dl)

Uric acid (mg/dl)

Lipid profile

a) Total cholesterol

b) HDL

c) LDL

d) VLDL

e) TGL

Liver Function Test

Total bilirubin

Direct bilirubin

Indirect bilirubin

SGOT

SGPT

Alkaline phosphatase

Total protein

Serum albumin

Serum globulin

Urine

Albumin

Sugar (Fasting & Postprandial)

Deposits

OTHER TESTS

HbsAg

HIV

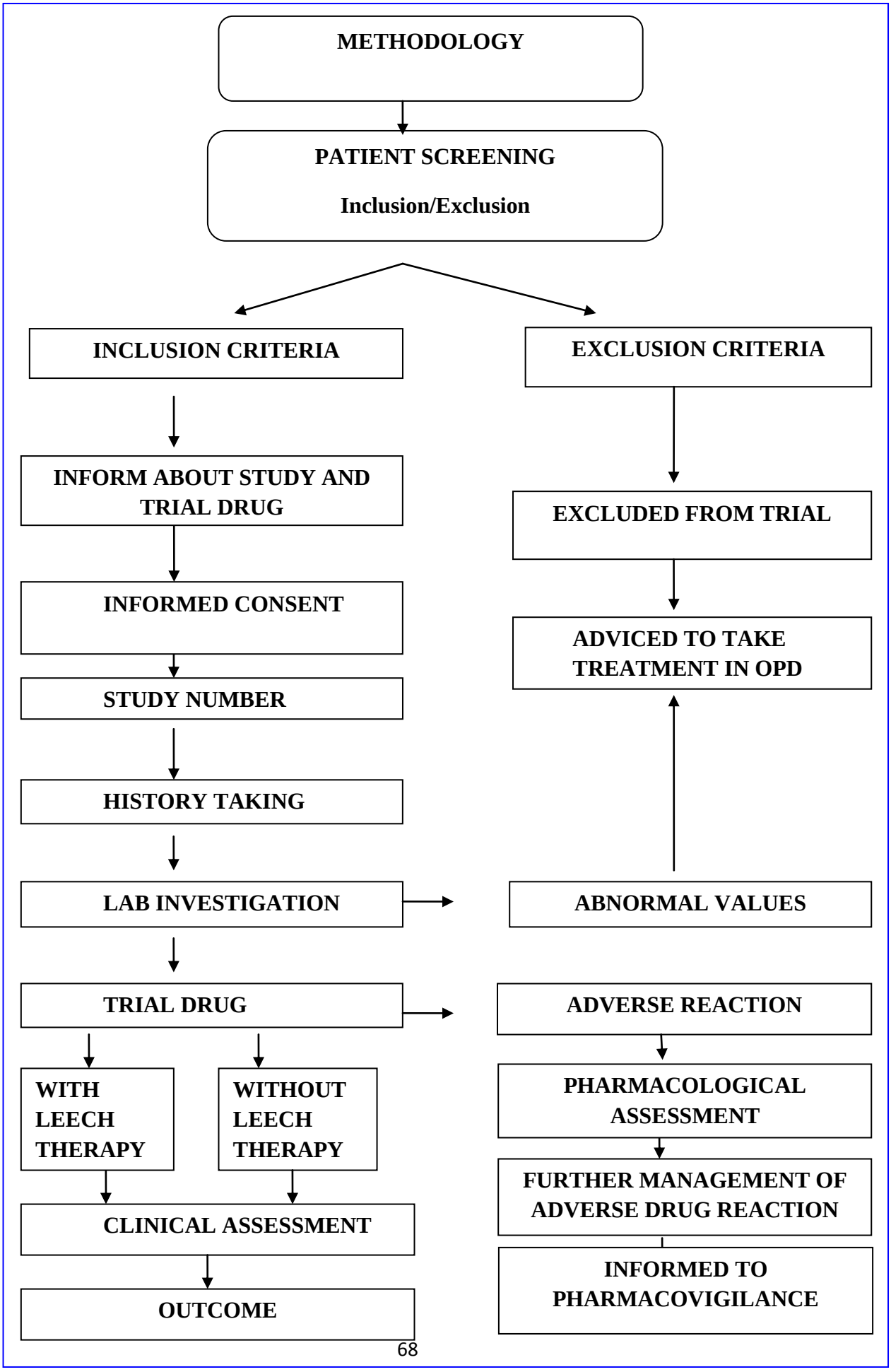
VDRL

HCV

DATA COLLECTION FORMS:

Required information were collected from each patient by using the following forms

Form l **:**Screening proforma
Form lI **:** Case record form
Form llI **:** Laboratory investigation proforma
Form lV **:** Drug compliance form
Form V **:** Patient information form
Form VI **:** Informed consent form
Form VII **:** Pharmacovigilance/Withdrawal form
Form VIII **:** Dietary advice form


METHODOLOGY
PATIENT SCREENING
Inclusion/Exclusion
INCLUSION CRITERIA
EXCLUSION CRITERIA
INFORM ABOUT STUDY AND TRIAL DRUG
EXCLUDED FROM TRIAL
INFORMED CONSENT
ADVICED TO TAKE TREATMENT IN OPD
STUDY NUMBER
HISTORY TAKING
LAB INVESTIGATION
ABNORMAL VALUES
TRIAL DRUG
ADVERSE REACTION
WITH LEECH THERAPY
WITHOUT LEECH THERAPY
PHARMACOLOGICAL ASSESSMENT
FURTHER MANAGEMENT OF ADVERSE DRUG REACTION
CLINICAL ASSESSMENT
INFORMED TO PHARMACOVIGILANCE
OUTCOME

STUDY ENROLLMENT:

- Patients reported at the OPD with the clinical symptoms of Karappan were examined clinically for enrolling in the study based on the inclusion and exclusion criteria.
- The patients who were enrolled, were informed (Form-V) about the study, trial drug, Leech application, possible outcomes and the objectives of the study in the language and terms understandable to them and the informed consent were obtained in writing from them in the consent form (Form VI).
- All these patients were given unique registration card in which the patient's registration number of the study, address, phone number and Doctor's phone number etc. were given, so as to report easily whether any complications arise.
- Complete clinical history, complaints, duration, examination findings and laboratory investigations -- were recorded in the prescribed Proforma. Screening Form- I were filled up: Form –II and Form –III were used for recording the patient's history, clinical examination of symptoms, signs and laboratory investigations respectively.
- Patients were advised to take the trial drug regularly and appropriate dietary advice was given according to the patient's perfect understanding.

CONDUCT OF THE STUDY:

The day before the treatment purgation with *AgasthiyarKuzhambu– 130 mg* at early morning in empty stomach with *Sangang kuppi juice* were given for balancing the deranged Uyirthathu.

From the next day onwards, the trial drugs *"Nilavaagai chooranam"* were given internally for 48 days and *"Thengaai thylam"* were applied externally for 48 days. OPD patients were advised to visit the hospital once in 7 days for 48 days. At each clinical visit, clinical assessment was done and prognosis was noted. For 20 patients, the drug was given for 48 days along with Leech Therapy with 7 days interval.

Laboratory investigations were done on the first and the 49^{th} day of the trial. After the trial period, the patients were advised to visit the OPD for follow-up for further two months to observe any recurrence. Defaulters were not being allowed to continue the trial and were withdrawn from the study.

DATA ANALYSIS:

After enrolling the patient in the study, a separate file were maintained for each and every patient and all forms and other information were kept in the file. The screening forms were filled separately. The data entry were monitored by the Head of the department and faculty members of dept. of Sirappu Maruthuvam. All collected data were statistically analysed by Sr. Research Officer (Statistics) for logical errors and incompleteness of data to avoid any bias. No modification in the results was permitted for unbiased reports. Then final report were generated.

OUTCOME:

The outcome was mainly assessed by reduction in symptoms like itching, oozing etc. and also assessed by using EASI SCORE

Eczema Area and Severity Index(EASI)Score	Before treatment	After treatment

CALCULATION OF EASI SCORE

EASI=0.1{Eh+Ih/Oh/Ph+Exh+Lh}(A)h+0.2{Eu+Iu/Ou/Pu+Exu+Lu}Au+0.3{Et +It/Ot/Pt+Ext+Lt}At+0.4{El+Il/Ol/Pl+Exl+Ll}Al

Eh -Erythema of head

Ih -Induration of head

Oh -Oedema of head

Ph -Papulation of head

Exh -Excoriation of head

Lh -Lichenification of head

(A)h -Area of head

Upper extremities-u

Trunk-t

Lower extremities-l

E, I, O, P, Ex, and L are assessed according to a 3-point scale where 0=no symptoms, 1=slight,

2=moderate, 3=marked. A is assigned a numerical value based on the extent of lesions in a given anatomic site: 1=<10%, 2=10-29%, 3=30-49%, 4=50-69%, 5=70-89% and 6=90-10s0%.

ADVERSE EFFECT/SERIOUS ADVERSE EFFECT MANAGEMENT:

The trial patient not developed any adverse reactions.

ETHICAL ISSUES:

1. To prevent any infection, while collecting blood sample from the patient, only disposable syringes, disposable gloves, with proper sterilization of lab equipments were used.
2. No other external or internal medicines were used other than the trial drug, for treating Karappan. There were no infringement on the rights of patient.
3. The data collected from the patient were kept confidential. The patients were informed about the diagnosis, treatment and follow-up.
4. After the consent of the patient (through consent form) they were enrolled in the study.
5. Informed consent was obtained from the patient explaining to him/her in the language understandable to the patient.
6. Treatment were provided free of cost.
7. No serious adverse reactions noted.
8. To avoid cross infection, the leeches used for one person were not allowed to use for another person.
9. After finishing the study, the leeches were discarded.

BIO - CHEMICAL ANALYSIS OF NILAVAAGAI CHOORANAM ANALYSED AT NATIONAL INSTITUTE OF SIDDHA

S.No	EXPERIMENT	OBSERVATION	INFERENCE
1.	Physical Appearance of sample	Dark greenish brown colour	
2.	**Solubility:** a. A little of the sample is shaken well with distilled water. b. A little of the sample is shaken well with con. HCl/ Con. H_2So_4.	Sparingly Soluble in distilled water	**Presence of Silicate**
3.	**Action of Heat:** A small amount of the sample is taken in a dry test tube and heated gently at first and then strong.	No brown fumes evolved	Absence of Nitrate
4.	**Flame Test:** A small amount of the sample is made into a paste with con. HCl in a watch glass and introduced into non-luminous part of the Bunsen flame.	No Bluish green flame appeared.	Absence of Copper
5.	**Ash Test:** A filter paper is soaked into a mixture of sample and dil. cobalt nitrate solution and introduced into the Bunsen flame and ignited	No Yellow coloured flame	Absence of Sodium

Preparation of Extract: 5 gm of Nilavaagai Chooranam is weighed accurately and placed in a 250ml clean beaker and added with 50ml of distilled water. Then it is boiled well for about 10 minutes. Then it is cooled and filtered in a 100ml volumetric flask and made up to 100ml with distilled water.

S.No	EXPERIMENT	OBSERVATION	INFERENCE
I. TEST FOR ACID RADICALS			
1.	**Test For Sulphate:** a.2ml of the above prepared extract is taken in a test tube to this added 2ml of 4% dil. ammonium oxalate solution	Cloudy appearance present	**Presence of Sulphate**
2.	**Test For Chloride:** 2ml of the above prepared extracts is added with dil-HNO_3 is added until the effervescence ceases off. Then 2 ml of Silver nitrate solution is added.	Cloudy appearance absent	**Presence of Chloride**
3.	**Test For Phosphate:** 2ml of the extract is treated with 2ml of ammonium molybdate solution and 2ml of con.HNO_3	Cloudy yellow appearance present	**Presence of Phosphate**
4.	**Test For Carbonate:** 2ml of the extract is treated with 2ml magnesium sulphate solution.	Cloudy appearance present	**Presence of Carbonate**
5	**Test For Nitrate:** 1gm of the substance is heated with copper turnings and concentrated H2So4 and viewed the test tube vertically down.	No characteristic changes	Absence of nitrate
6	**Test For Sulphide:** 1gm of the substance is treated with 2ml of con. HCl	No Rotten egg smelling gas evolved.	Absence of sulphide

7	**Test For Fluoride & Oxalate:** 2ml of extract is added with 2ml of dil. Acetic acid and 2ml calcium chloride solution and heated	No cloudy appearance	Absence of fluoride and oxalate
8.	**Test For Nitrite:** 3drops of the extract is placed on a filter paper, on that-2 drops of dil.acetic acid and 2 drops of dil. Benzidine solution is placed.	No characteristic changes	Absence of nitrite
9.	**Test For Borate:** 2 Pinches of the substance is made into paste by using sulphuric acid and alcohol (95%) and introduced into the blue flame.	Bluish green colour flame not appeared	Absence of borate
II. TEST FOR BASIC RADICALS			
1.	**Test For Lead:** 2ml of the extract is added with 2ml of potassium iodide solution.	Yellow precipitate was obtained.	**Presence of Lead**
2.	**Test For Copper:** a. One pinch of substance is made into paste with con. HCl in a watch glass and introduced into the non-luminuous part of the flame. b. 2ml of extract is added with excess of ammonia solution	No Blue colour flame No Blue colour precipitate formed.	Absence of Copper
3.	**Test For Aluminium:** To the 2ml of the extract sodium hydroxide is added in drops to excess.	No characteristic changes	Absence of Aluminium

4.	**Test For Iron:** a. To the 2ml of extract add 2ml of ammonium thiocyanate solution b. To the 2ml of extract 2ml ammonium thiocyanate solution and 2ml of con. HNO_3 is added	Mild red colour appeared Blood red colour appeared	**Presence of iron** **Presence of iron**
5.	**Test For Zinc:** To 2m1 of the extract sodium hydroxide solution is added in drops to excess.	White precipitate was formed	**Presence of Zinc.**
6.	**Test For Calcium:** 2ml of the extract is added with 2ml of 4% ammonium oxalate solution	Cloudy appearance and white precipitate was obtained.	**Presence of Calcium**
7.	**Test For Magnesium:** To 2ml of extract sodium hydroxide solution is added in drops to excess.	White precipitate is obtained	**Presence of Magnesium**
8.	**Test For Ammonium:** To 2ml of extract few ml of Nessler's reagent and excess of sodium hydroxide solution are added.	Brown colour appeared	**Presence of Ammonium**
9.	**Test For Potassium:** A pinch of substance is treated with 2ml of sodium nitrite solution and then treated with 2ml of cobalt nitrate in 30% glacial acetic acid.	No Yellowish precipitate was obtained.	Absence of Potassium
10.	**Test For Sodium**: 2 pinches of the substance is made into paste by using HCl and introduced into the blue flame of Bunsen burner.	No Yellow coloured flame appeared	Absence of Sodium

11.	**Test For Mercury**: 2ml of the extract is treated with 2ml of sodium hydroxide solution.	No yellow precipitate was obtained.	Absence of Mercury
12.	**Test For Arsenic:** 2ml of the extract is treated with 2ml of sodium hydroxide solution.	Brownish red precipitate was obtained.	**Presence of Arsenic**
III. MISCELLANEOUS			
1.	**Test For Starch:** 2ml of extract is treated with weak iodine solution	Blue colour developed	**Presence of Starch**
2.	**Test For Reducing Sugar:** 5ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 minutes and added 8 to 10 drops of the extract and again boil it for 2 minutes. The colour changes are noted.	No brick red colour developed	Absence of Reducing sugar.
3.	**Test For The Alkaloids**: a) 2ml of the extract is treated with 2ml of potassium iodide solution. b) 2ml of the extract is treated with 2ml of picric acid. c) 2ml of the extract is treated with 2ml of phosphotungstic acid.	Red colour developed Yellow colour developed No white precipitate developed	**Presence of Alkaloids**
4.	**Test For Tannic Acid:** 2ml of extract is treated with 2ml of ferric chloride solution	Black precipitate was obtained	**Presence of Tannic acid**

5.	**Test For Unsaturated Compound:** To the 2ml of extract 2ml of potassium permanganate solution is added.	Potassium permanganate was not decolourised	Absence of unsaturated compound
6.	**Test For Amino Acid:** 2 drops of the extract is placed on a filter paper and dried well.	No Violet colour developed	Absence of Amino acids
7.	**Test For Type Of Compound:** 2ml of the extract is treated with 2 ml of ferric chloride solution.	Dark blue colour developed	**Morphine, Phenol cresol and hydro quinone are present**

RESULT:

The bio-chemical analysis Nilavaagai chooranam had shown the presence of Silicate, Sulphate, Chloride, Phosphate, Carbonate, Lead, Iron, Zinc, Calcium, Magnesium, Ammonium, Arsenic, Starch, Alkaloid, Tannic acid, Morphine, Phenol cresol and hydroquinone are present.

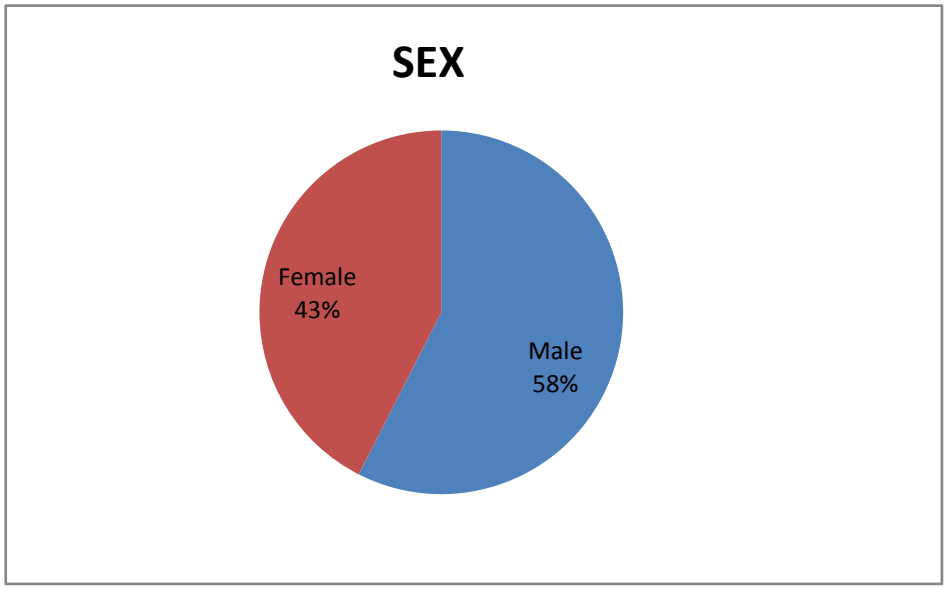
OBSERVATION AND RESULTS

The observation and results have been tabulated under the following headings.

1. Sex distribution
2. Age distribution
3. Kaalam distribution
4. Socio economic status
5. Occupational status
6. Family History
7. Dietary habits
8. Paruvakaalam
9. Thinai
10. Yakkai Ilakkanam (Physical Constitution)
11. Gunam
12. Duration of illness
13. Clinical features
14. Site of lesion
15. Distribution of mukkutram
16. Udar Kattugal
17. En Vagai thervugal
18. Neikkuri
19. Outcome assessment through EASI Score

1. SEX DISTRIBUTION

Sl No	Sex	No. of Cases	Percentage
1	Male	23	57.5%
2	Female	17	42.5%

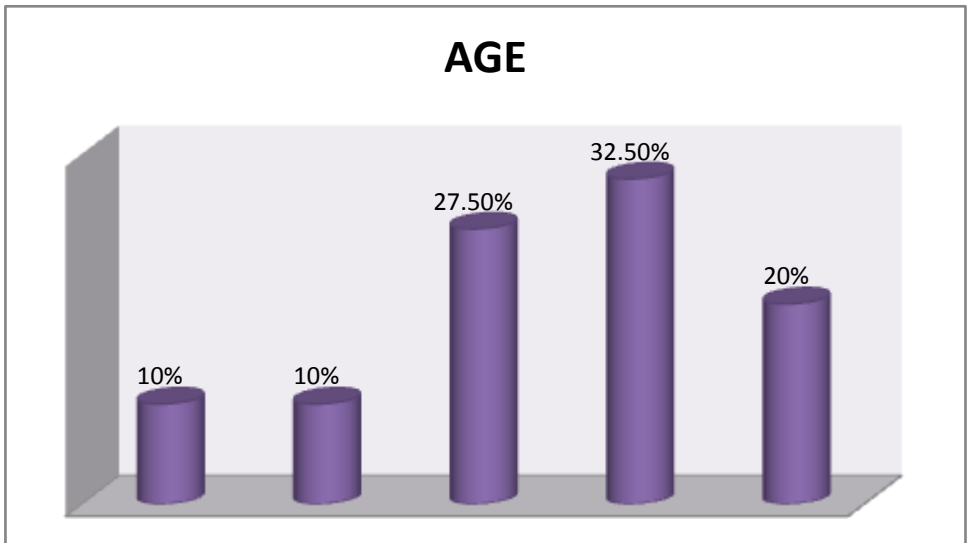


Observation

Among the 40 patients included in this study, 57.5% were male and 42.5% were female.

2. AGE DISTRIBUTION

Sl. No	Age	No. of Cases	Percentage
1	20-30	4	10%
2	31-40	4	10%
3	41-50	11	27.5%
4	51-60	13	32.5%
5	61-70	8	20%



Observation

Among the 40 patients selected for this study, maximum numbers of patients 32.5% were in the age group of 51 to 60yrs, 27.5% were in the age group of 41 to 50yrs, 20% were in the age 61 to 70yrs and 10% were in the age of 21 to 30yrs and 31 to 40yrs.

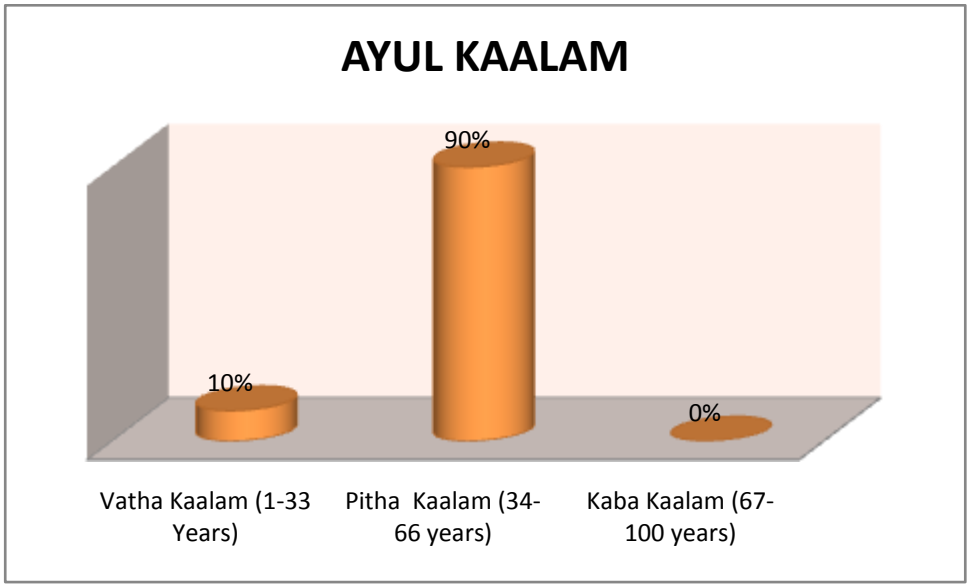
3. AYUL KAALAM DISTRIBUTION (According to Age)

In Siddha literature human life has been divided into three periods as follows

1 Vaatha kaalam
2 Pitha kaalam
3 Kaba kaalam

The duration of each period is said to be 33 years

Sl No	Kaalam	No. of Cases	Percentage
1	Vatha Kaalam (1-33 Years)	4	10%
2	Pitha Kaalam (34-66 years)	36	90%
3	Kaba Kaalam (67-100 years)	0	0%

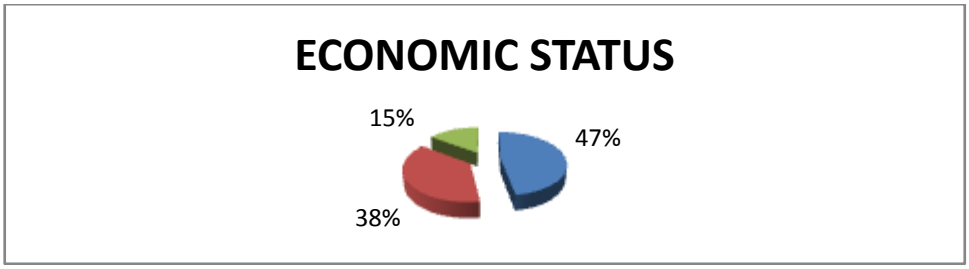


Observation

Out of 40 patients, 36 patients were reported in Pitha kaalam, the remaining 4 in Vatha kaalam.

4. SOCIO ECONOMIC STATUS

Sl. No	ECONOMIC STATUS	No. of Cases	Percentage
1	Low income	19	47.5%
2	Middle income	15	37.5%
3	High income	6	15%

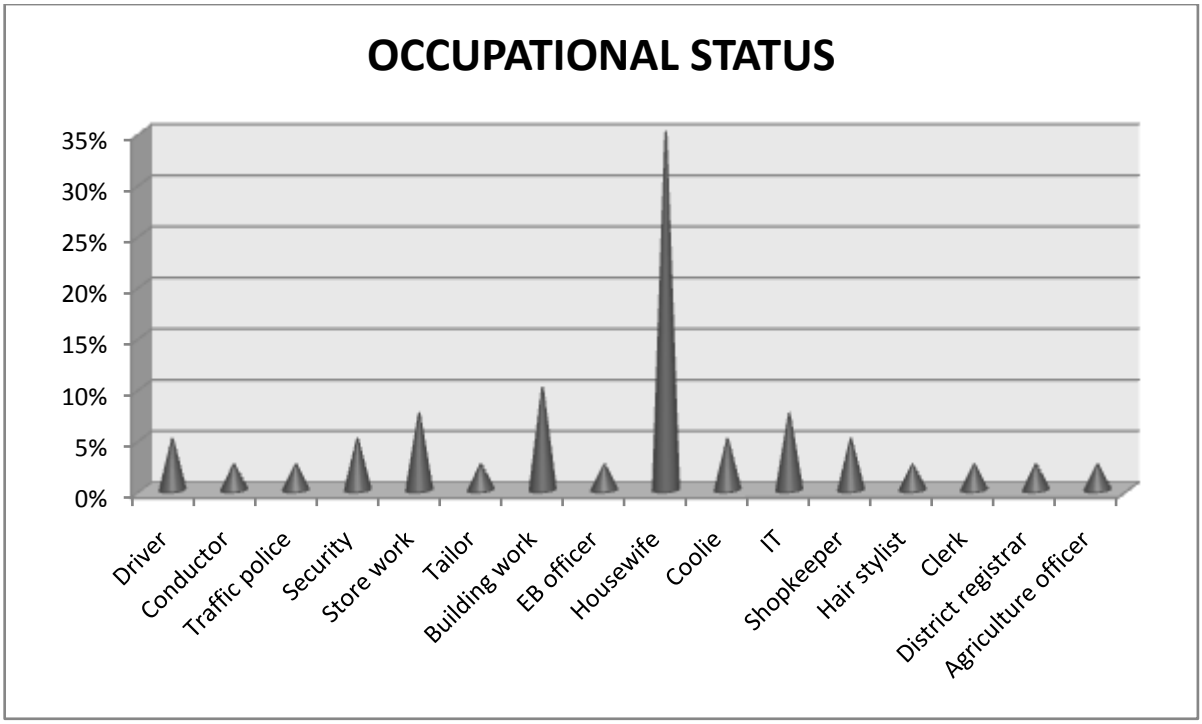


Observation

Out of 40 patients, 47.5% patients were under low income group, 37.5% patients were under middle income group, the remaining 15% patients were under high income group.

5. OCCUPATIONAL STATUS

Sl. No	Nature of Work	No. of Cases	Percentage
1	Driver	2	5 %
2	Conductor	1	2.5%
3	Traffic police	1	2.5 %
4	Security	2	5%
5	Store work	3	7.5 %
6	Tailor	1	2.5%
7	Building work	4	10 %
8	EB officer	1	2.5%
9	Housewife	14	35 %
10	Coolie	2	5 %
11	IT professional	3	7.5%
12	Shopkeeper	2	5 %
13	Hair stylist	1	2.5%
14	Clerk	1	2.5%
15	District registrar	1	2.5%
16	Agriculture officer	1	2.5%

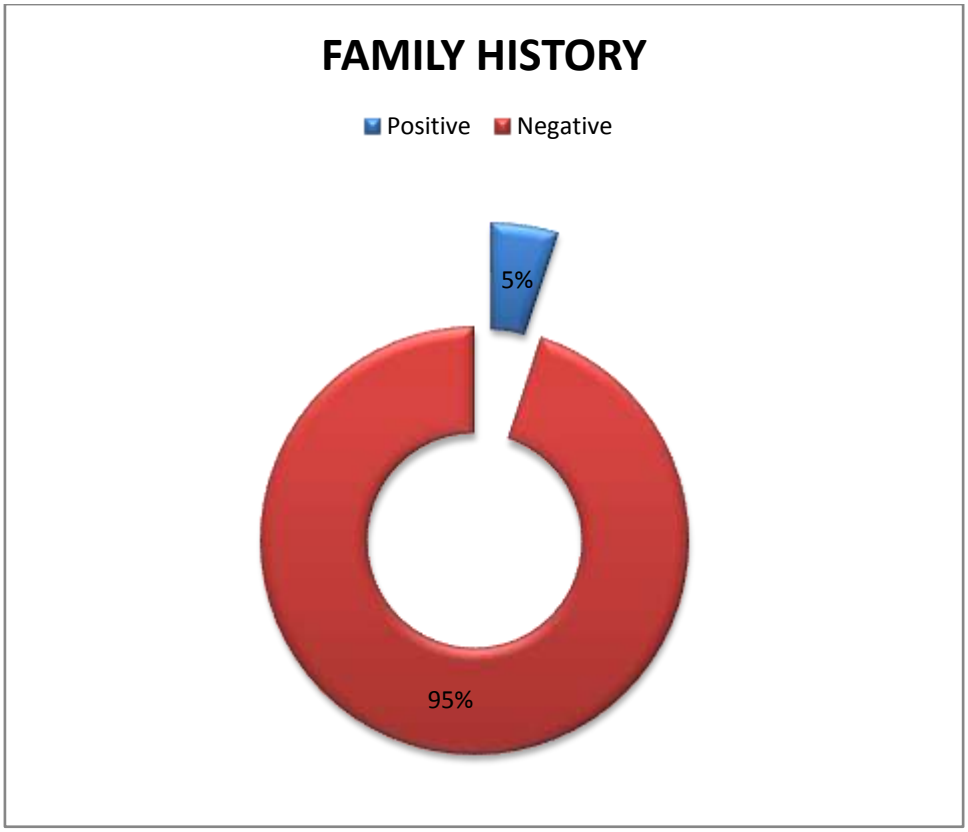


Observation

Among 40 patients35% cases were housewife, 10% were at building work, 7.5% of them were store work and IT professional, 5% were driver, security, coolie and shopkeeper, 2.5% of them were conductor, traffic police, tailor, EB officer, hair stylist, Clerk, District registrar and Agriculture officer.

6. **FAMILY HISTORY**

Sl. No	Criteria	No. of Cases	Percentage
1	Family History (+ve)	2	5%
2	Family History (-ve)	38	95%

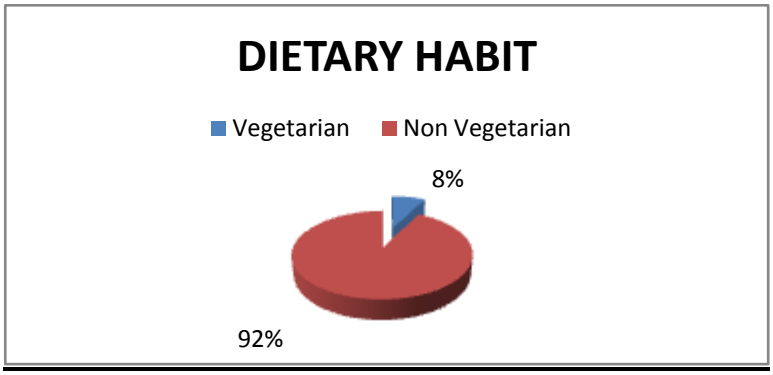


Observation

Among 40 patients, 95% of the patients showed no family history, 5% showed positive family history.

7. DIETARY HABITS

Sl. No	Dietary Habits	No. of Cases	Percentage
1	Vegetarian	4	10%
2	Non Vegetarian	36	90%

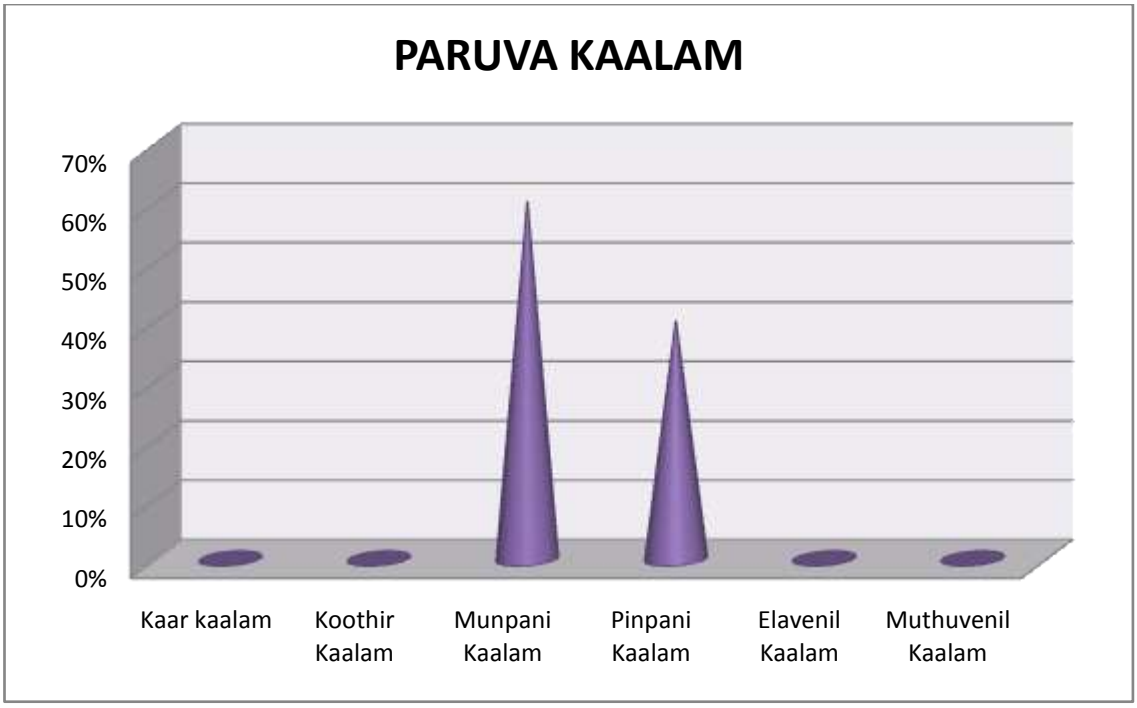


Observation

92% cases are non-vegetarian.

8. PARUVA KAALAM

Sl No.	Paruva Kaalam	No. of Cases	Percentage
1	Kaar kaalam (Aavani & Purattasi)	0	0%
2	Koothir Kaalam (Aippasi&Kaarthigai)	0	0%
3	Munpani Kaalam (Margazhi& Thai)	24	60%
4	Pinpani Kaalam (Maasi&Panguni)	16	40%
5	Elavenil Kaalam (Chithirai & Vaikasi)	0	0%
6	Muthuvenil Kaalam (Aani&Aadi)	0	0%



Observation

Among the 40 patients admitted for this study, the highest number of patients(60%) reported in Munpani Kaalam, 40% reported in Pinpani Kaalam.

9. THINAI REFERENCE

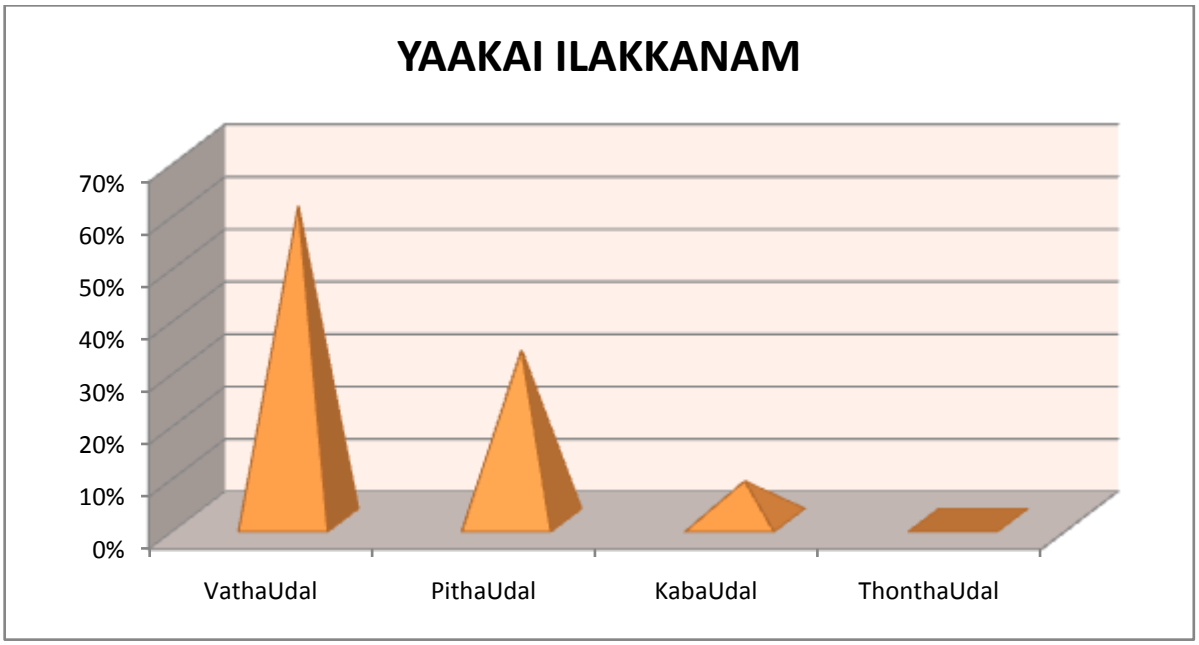
Sl. No	Thinai	No. of Cases	Percentage
1	Kurinji (Hill Area)	0	0%
2	Mullai (Forest Area)	0	0%
3	Marutham (Fertile Land)	0	0%
4	Neithal (Coastal Area)	40	100%
5	Palai (Desert Land)	0	0

Observation

Among the 40 patients, 100% of the patients were from Neithal (Coastal Area).

10. YAAKAI ILAKKANAM

Sl. No	Yaakai Ilakkanam	No. of Cases	Percentage
1	VathaUdal	24	60%
2	PithaUdal	13	32.5%
3	KabaUdal	3	7.5%
4	ThonthaUdal	0	0%



Observation

In 40 patients, 60% had VathaUdal, 32.5% had PithaUdal, 7.5% had KabaUdal.

11. GUNAM (QUALITY AND CHARACTERS)

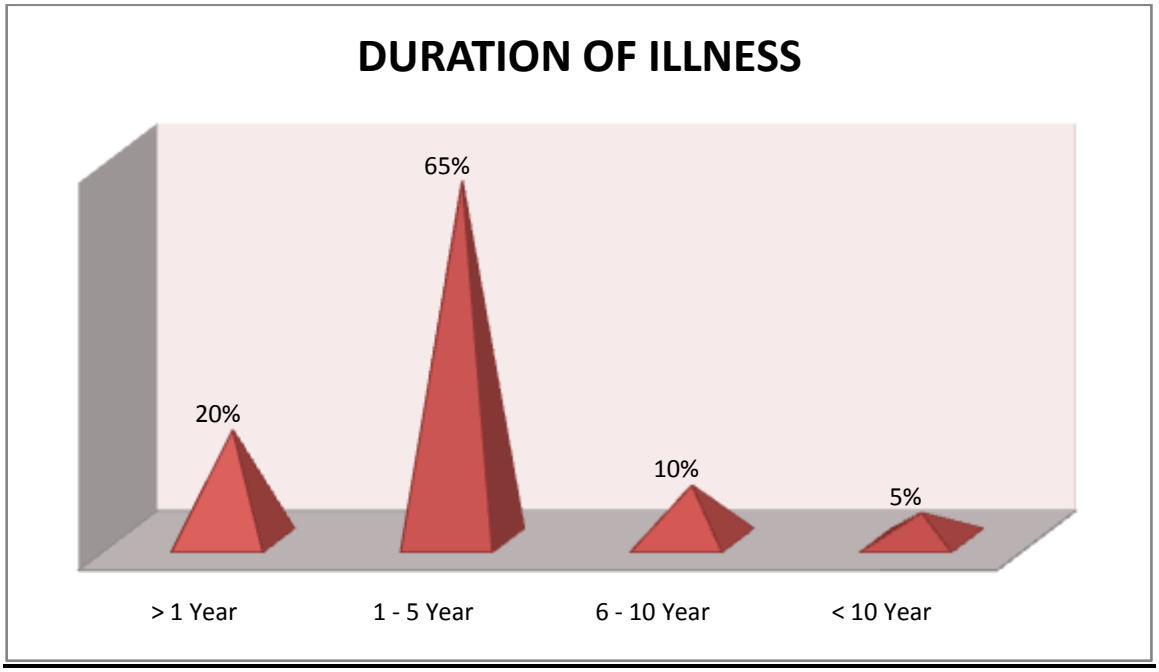
Sl. No	Gunam	No. of Cases	Percentage
1	Satthuva Gunam	0	0%
2	Raso Gunam	40	100%
3	Thamo Gunam	0	0%

Observation

In 40 patients 100% had Rasogunam.

12. DURATION OF ILLNESS

Sl. No	Duration of Illness	No. of Cases	Percentage
1	> 1 Year	8	20%
2	1-5 Years	26	65 %
3	6-10 Years	4	10 %
4	< 10 Years	2	5%

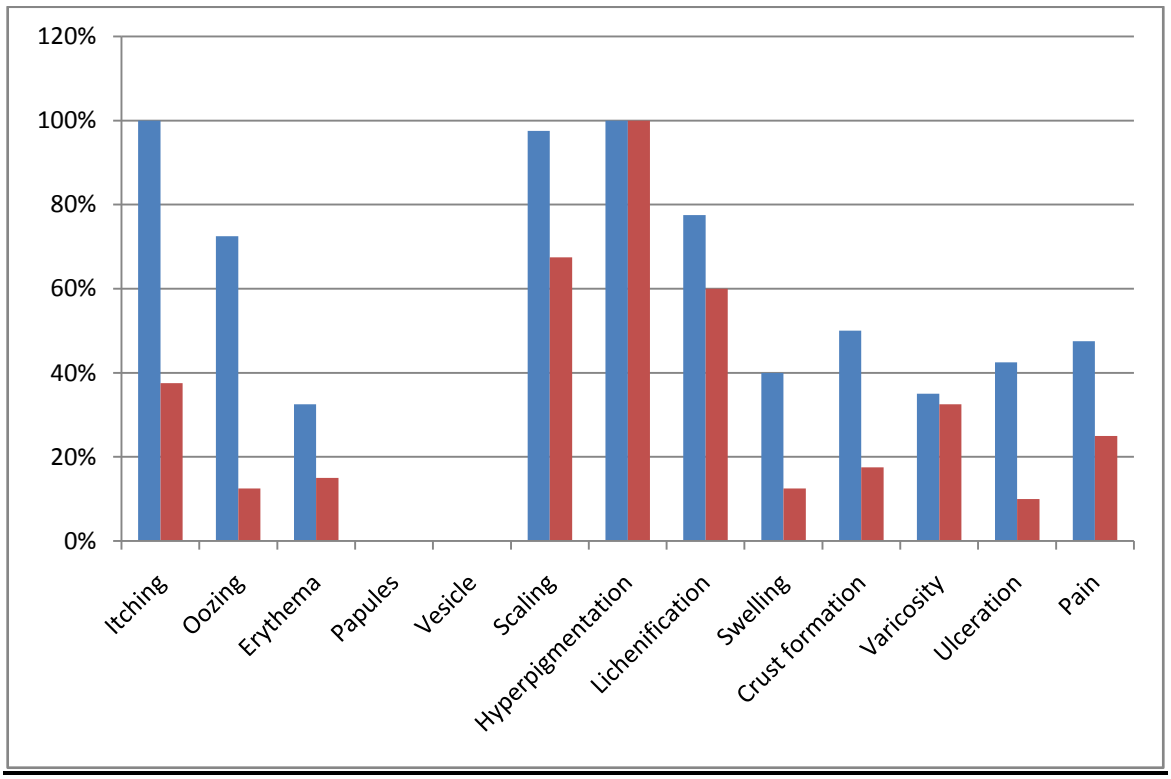


Observation:

Among the 40 patients the maximum number of patients 65% had the duration of illness between 1-5 years , 20% of them had > 1 Year, 10% were 6-10 yrs, 5% were <10 yrs.

13. CLINICAL FEATURES

Sl. No	Clinical Features	No. of Cases		Percentage	
		BT	AT	BT	AT
1	Itching	40	15	100%	37.5%
2	Oozing	29	5	72.5%	12.5%
3	Erythema	13	6	32.5%	15%
4	Papules	0	0	o%	0%
5	Vesicle	0	0	0%	0%
6	Scaling	39	27	97.5%	67.5%
7	Hyperpigmentation	40	40	100%	100%
8	Lichenification	31	24	77.5%	60%
9	Swelling	16	5	40%	12.5%
10	Crust formation	20	7	50%	17.5%
11	Varicosity of veins	14	13	35%	32.5%
12	Ulceration	17	4	42.5%	10%
13	Pain	19	10	47.5%	25%

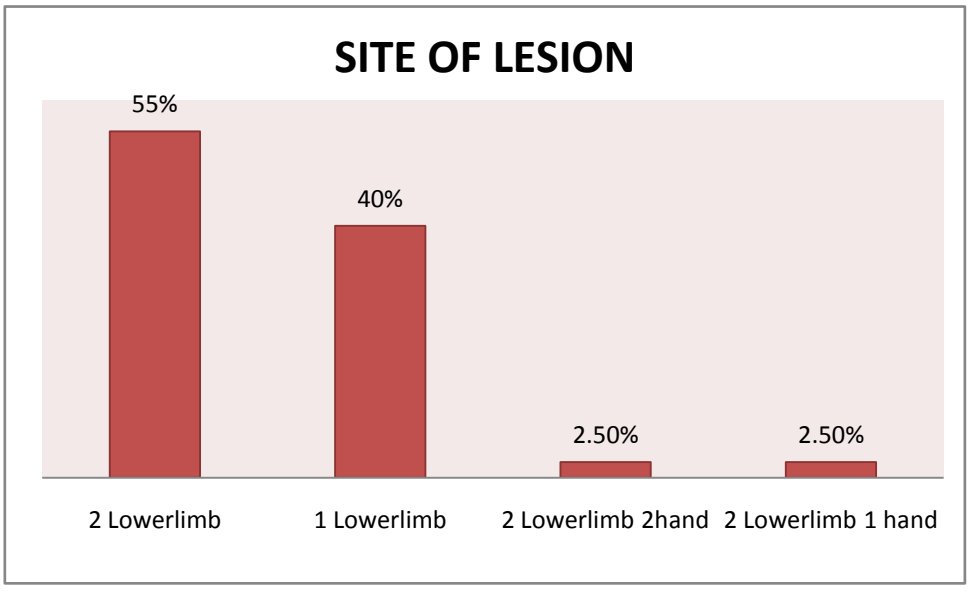


Observation:

Among 40 patients included in the study, before treatment 100% of cases suffered from itching and hyperpigmentation, 97.5% of them had scaling, 77.5% of them had lichenification, 72.5% of them had oozing, 50% of them had crust formation, 47.5% of them had pain, 42.5% of them had ulceration, 40% of them had swelling, 35% of them had varicosity of veins and 32.5% of them had erythema, after treatment 100% of cases had hyper pigmentation, 67.5% of them had scaling, 60% of them had lichenification, 37.5% of them had itching, 32.5% of them had varicosity, 25% of them had pain, 17.5% of them had crust formation, 15% of them had erythema, 12.5% of them had oozing and swelling and 10% of them had ulceration .

14. SITE OF LESION

Sl. No	Site of Lesion	No. of Cases	Percentage
1	2 Lower Limb	22	55%
2	1 Lower Limb	16	40%
3	2 Lower limb with 2 Hand	1	2.5%
4	2 Lowerlimb with 1 Hand	1	2.5%



Observation

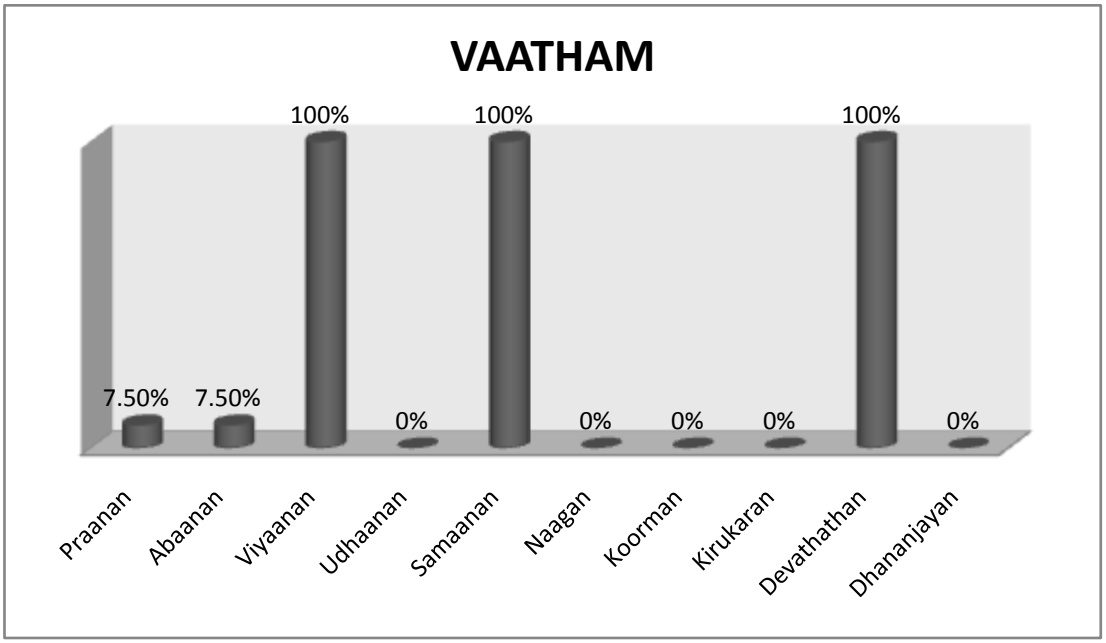
Among 40 patients 55% had the lesion in 2 lower limb, 40% had the lesion in 1 lower limb and 2.5% had 2 Lower limb with 2 Hand and 2 Lower limb with 1 Hand.

15. DISTRIBUTION OF UYIR THATHUKKAL

The derangement of Vaatham, Pitham and Kabam in Karappan is as follows

VAATHAM

Sl. No	Classification of Vaatham	No. of Cases	Percentage
1	Praanan	3	7.5%
2	Abaanan	3	7.5%
3	Udhaanan	0	0%
4	Samaanan	40	100%
5	Viyaanan	40	100%
6	Naagan	0	0%
7	Koorman	0	0%
8	Kirukaran	0	0%
9	Devathathan	40	100%
10	Dananjayan	0	0%

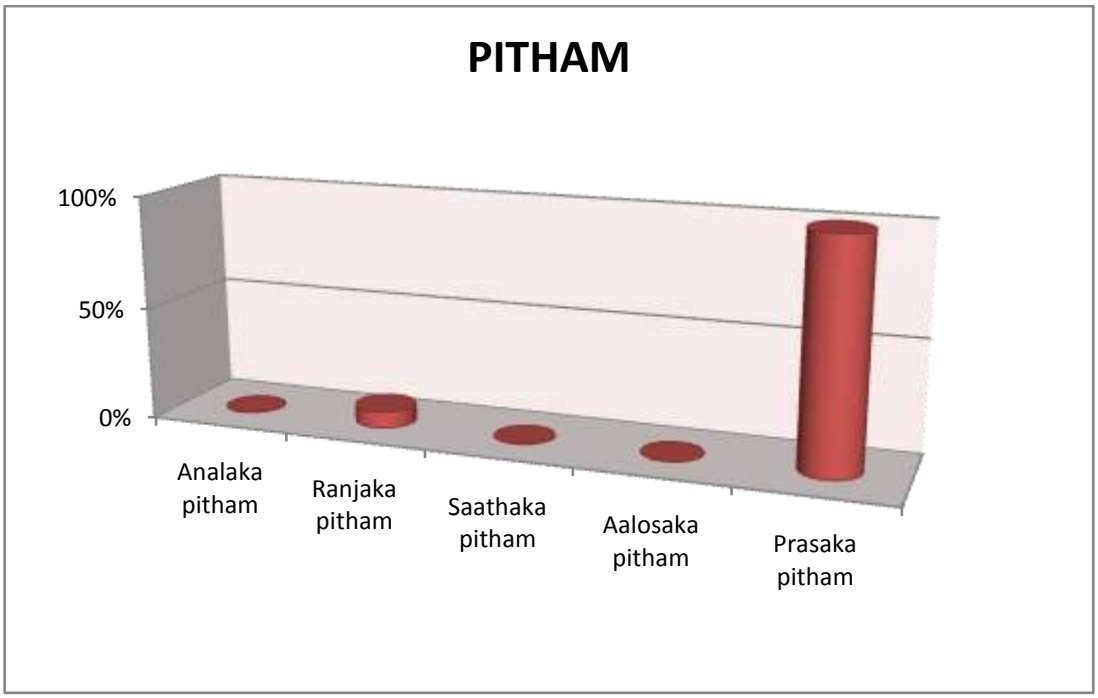


Observation

Samaanan, Viyaanan and Devathathan was found to be affected in all the 40 patients, Praanan and Abanan was affected in 7.5% of patients.

PITHAM

Sl. No	Classification of Pitham	No. of Cases	Percentage
1	Akkanal (Anarpitham)	0	0%
2	Vanna Eri (Ranjakam)	3	7.5%
3	Atralangi (Sathakam)	0	0%
4	Nokkanal (Alosakam)	0	0%
5	Ullolli thee (Prasakam)	40	100%



Observation

Prasaka pitham was affected in all the cases. Ranjaka pitham was affected in 7.5% of patients.

KABAM

Kabam was not affected in all the cases.

16. UDAR KATTUKAL

Sl. No	UdarKattugal	No. of Cases	Percentage
1	Saaram	40	100%
2	Senneer	40	100%
3	Oon	40	100%
4	Kozhuppu	40	100%
5	Enbu	0	0%
6	Moolai	0	0%
7	Sukkilam/Suronitham	0	0 %

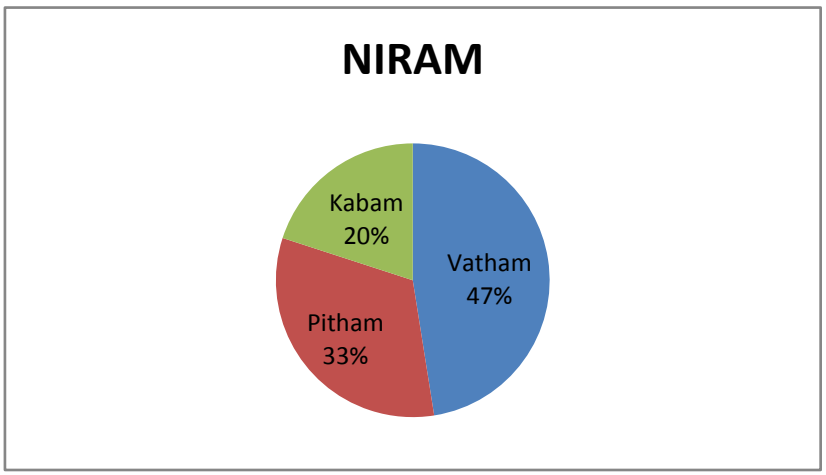
Observation:

Among 40 patients, Saaram, Senneer, Oon and Kozhuppu were affected in all the cases.

17. EN VAGAI THERVUKAL

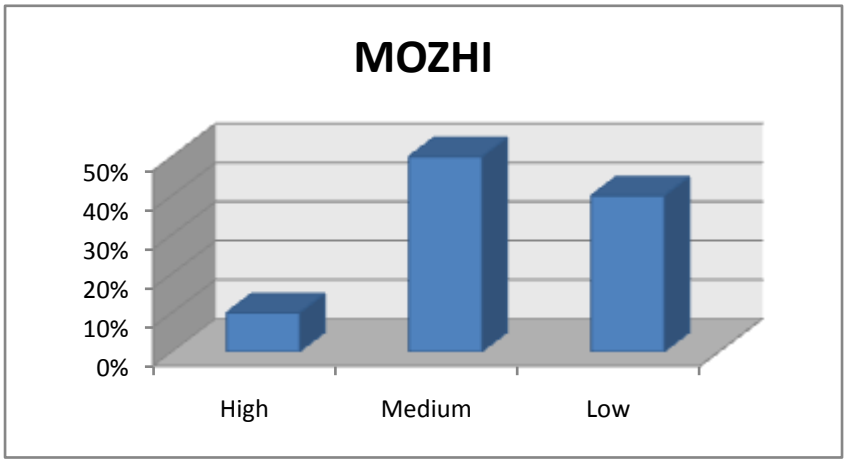
1) Niram

SL. No	Niram	No. of Cases	Percentage
1	Vaatham	19	47.5%
2	Pitham	13	32.5%
3	Kabam	8	20%



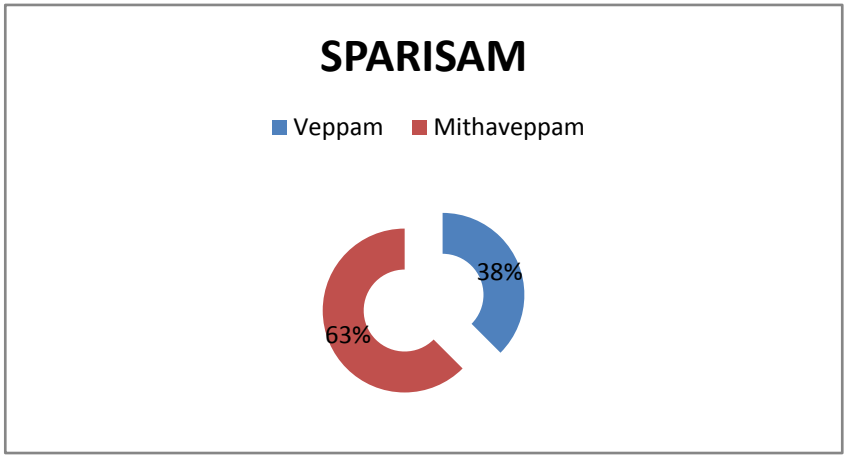
2) Mozhi (voice)

SL. No	Mozhi	No of Cases	Percentage
1	High pitched	4	10%
2	Medium pitched	20	50%
3	Low pitched	16	40%



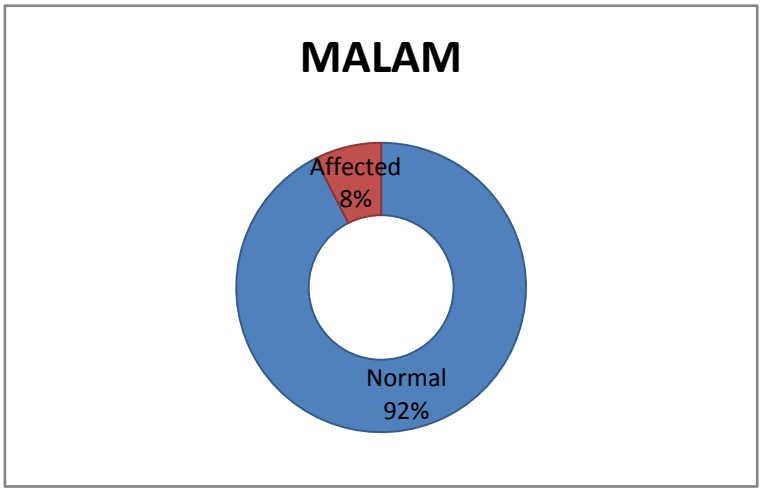
3) Sparisam

SL. No	Sparisam	No. of Cases	Percentage
1	Veppam	15	37.5%
2	Mithaveppam	25	62.5%



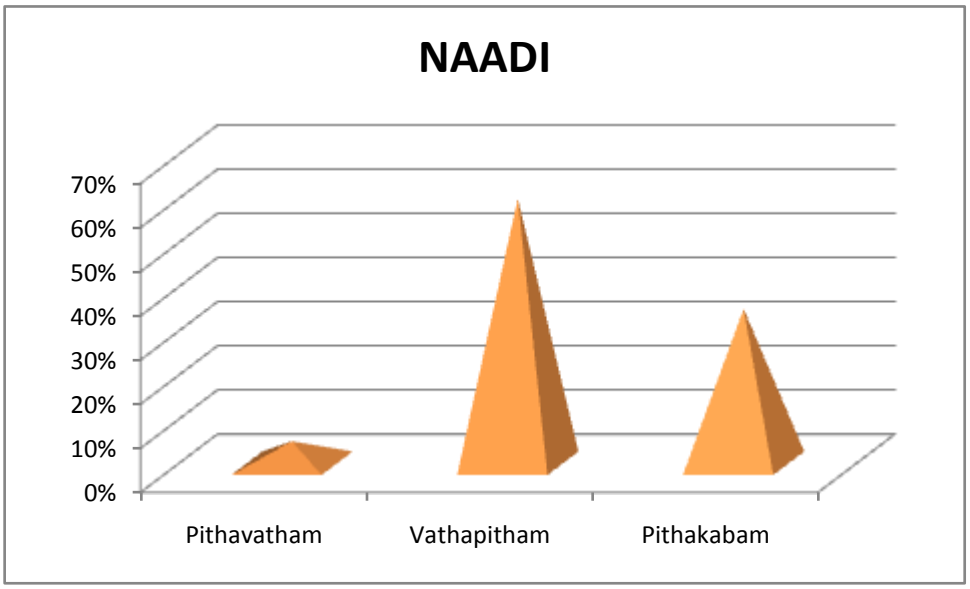
4) Malam

SL. No	Malam	No. of Cases	Percentage
1	Normal	37	92.5%
2	Affected	3	7.5%



5) Naadi

SL. No	Naadi	No. of Cases	Percentage
1	Pithavaatham	2	5%
2	Vaathapitham	24	60%
3	Pithakabam	14	35%



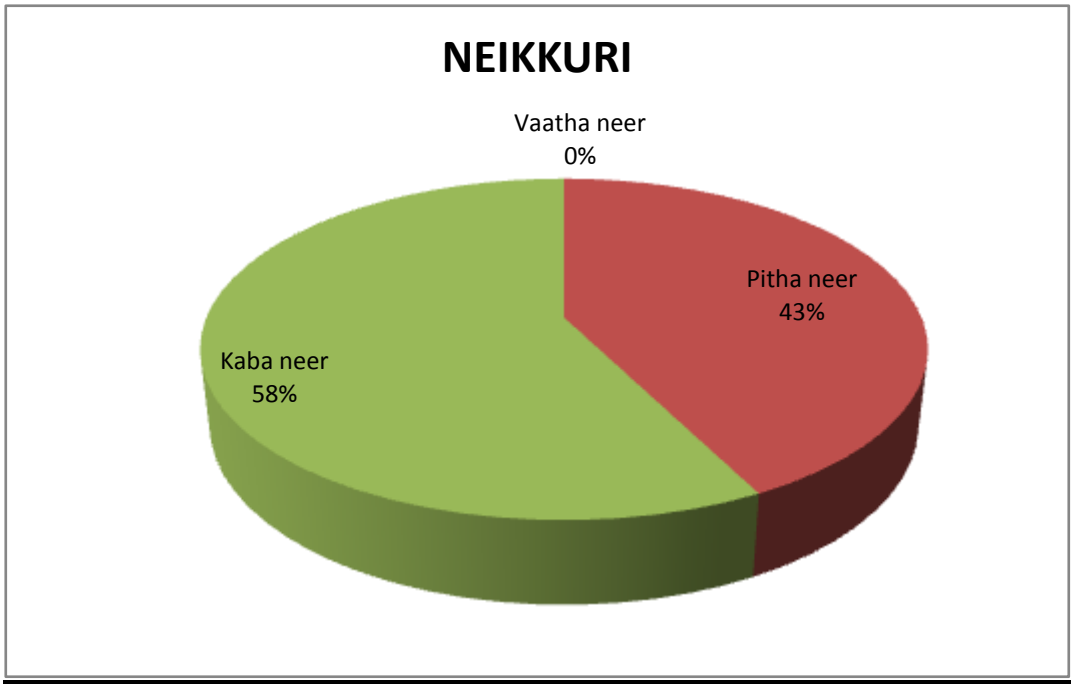
Observation:

In Envagai thervukal,

1. Niram - Vaatham was in 47.5%, Pitham was in 32.5% and Kabam was in 20%.
2. Mozhi - High pitched was in 10%, Medium pitched was in 50% and Low pitched was in 40%
3. Sparisam - Veppam was in 37.5% and Mithaveppam was in 62.5%
4. Malam - Only 7.5% was affected.
5. Naadi - The Naadinadai seen in Karappan patients were Vathapitham in 60%, Pithakabam in 35%, Pithavatham 5%.

18. NEIKKURI

Sl. No	Neikkuri	No. of Cases	Percentage
1	Vaatha neer	0	0%
2	Pitha neer	17	42.5%
3	Kaba neer	23	57.5%

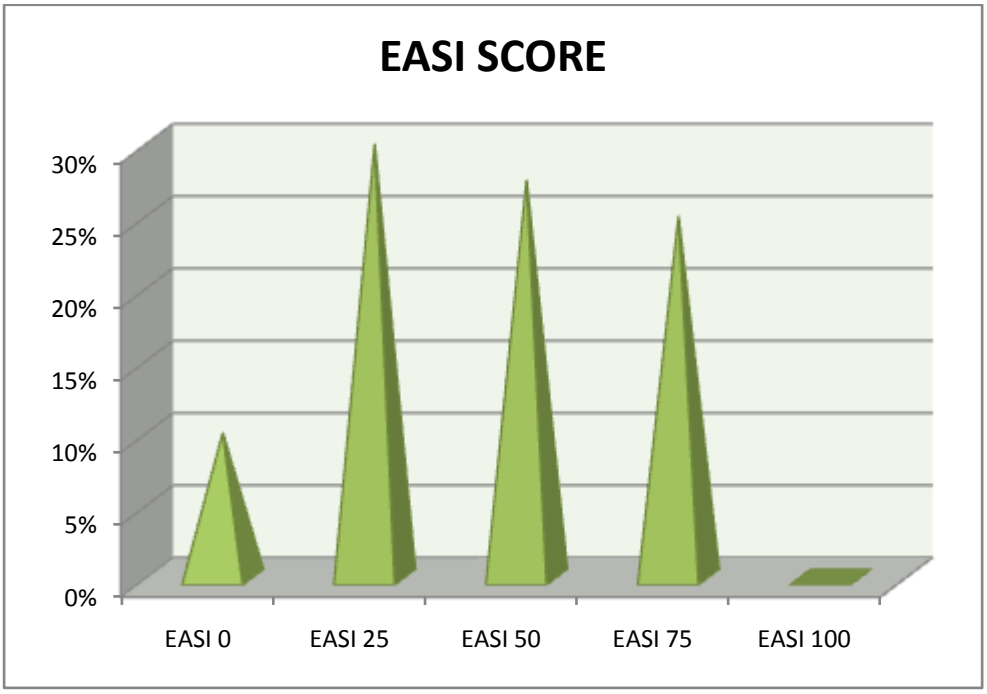


Observation:

In Neikkuri, Pitha neer was found in 42.5% patients and Kaba neer was found in 57.5% patients.

19. OUTCOME ASSESSMENT THROUGH EASI SCORE

Sl. No	Results	No of Cases	Percentage
1	EASI 0	4	10%
2	EASI 25	12	30%
3	EASI 50	11	27.5%
4	EASI 75	10	25%
5	EASI 100	0	0%



EASI 0 - No Reduction in the score
EASI 25 - 25% Reduction in the score after treatment
EASI 50- 50% Reduction in the score after treatment
EASI 75- 75% Reduction in the score after treatment
EASI 100- 100%Reduction in the score treatment

Observation:

30% of them had 25% of reduction in the score after treatment, 27.5% of them had 50% of reduction in the score after treatment, 25% of them had 75% of reduction in the score after treatment, 10% of them had no reduction in the score, which indicates the good improvement after treatment and 7.5% of them had increased in the score after treatment which indicates the eczema severity increased after treatment.

STATISTICAL ANALYSIS

TREATMENT WITH THE TRIAL DRUG

All collected data were entered into MS Excel software using different columns as variables and rows as patients. SPSS software was used to perform statistical analysis. Basic descriptive statistics include frequency distributions and cross-tabulations were performed. The quantity variables were expressed as Mean ± Standard Deviation and qualitative data as percentage. A probability value of <0.0001 was considered to indicate as statistical significance. Paired't' test was performed for determining the significance between before and after treatment.

EASI score	Mean± Std	p -value, t - value
Before treatment	4.21±2.68	p<0.0001, t = 4.30
After treatment	2.39± 1.96	

The assessment was done using EASI Score in all the 40 patients participated in the trial. The mean value of EASI score for all the 40 patients before treatment is 4.21 and after treatment is 2.39. The p-value is less than 0.0001 which is highly significant. The reduction in the Mean was 43%.

STATISTICAL ANALYSIS

LEECH THERAPY ALONG WITH THE TRIAL DRUG

EASI score	Mean± Std	p –value
Before treatment	4.8±3.32	p<0.0001
After treatment	2.52± 2.13	

The mean value of EASI score for patients with Leech therapy is 4.8 and after treatment is 2.52.The p-value is less than 0.0001 which is highly significant. The reduction in the Mean was 47.5%.

TRIAL DRUG WITHOUT LEECH THERAPY

EASI score	Mean± Std	p –value
Before treatment	3.62±1.72	p<0.0001
After treatment	2.26± 1.80	

The mean value of EASI score for patients without Leech therapy is 3.62 and after treatment is 2.26.The p-value is less than 0.0001 which is highly significant. The reduction in the Mean was 37.5%. Hence this study reveals Leech therapy along with trial medicines is to be effective in reducing the symptoms of Karappan.

CLINICAL IMPROVEMENT TRIAL DRUG WITH LEECH THERAPY

Sl. no	Op .no/ Ip. no.	Age/ Sex	DOI	Date Of Admission	No of Days Treated	EASI Score		GRADE
						BT	AT	
1	K42480	42/M	1 yr	27.12.18	48	2.4	0.4	EASI 75
2	K99583	35/M	3 yrs	7.1.19	48	4.8	0.8	EASI 75
3	L07620	50/M	6 mon	10.1.19	48	3.6	3.6	EASI 0
4	L08891	65/M	3 mon	13.1.19	48	4.8	2.4	EASI 50
5	K98714	50/F	2 yrs	21.1.19	48	4	2.4	EASI50
6	K50073	52/F	2 ½ yrs	26.1.19	48	4.8	2.4	EASI 50
7	L11404	62/M	1 yr	26.1.19	48	7.2	4.8	EASI 50
8	L1707	55/M	2 yrs	29.1.19	48	**2.4**	**4**	
9	0108-19	34/M	13 yrs	29.1.19	48	9.6	2.8	EASI 75
10	L15492	43/M	3 yrs	30.1.19	48	2	1.2	EASI 25
11	K41314	54/F	2 yrs	10.2.19	48	3.2	2.8	EASI 25
12	L17650	47/M	6 mon	13.2.19	48	3.2	3.2	EASI 0
13	0228-19	50/M	5 yrs	15.2.19	48	7.2	1.2	EASI 75
14	I73962	61/F	1 ½ yrs	18.2.19	48	14.4	3.2	EASI 75
15	K66805	51/F	5 yrs	4.3.19	48	1.2	0.4	EASI 50
16	K96927	30/F	7 yrs	6.3.19	48	9.6	3.2	EASI 75
17	K85275	63/M	5 yrs	7.3.19	48	1.2	1.2	EASI 0
18	L12532	64/M	3 mon	11.3.19	48	**4**	**9.6**	
19	L25367	52/F	6 mon	18.3.19	48	2.4	0.4	EASI 75
20	J35932	43/F	2 yrs	30.3.19	48	4	0.4	EASI 75

CLINICAL IMPROVEMENT TRIAL DRUG WITHOUT LEECH THERAPY

Sl. no	Op .no/ Ip. no.	Age/ Sex	DOI	Date Of Admission	No of Days Treated	EASI Score		GRADE
						BT	AT	
1	L01684	60/M	3 yrs	2.1.19	48	8.4	8.4	EASI 0
2	L04532	62/M	1 mon	7.1.19	48	**4**	**5.6**	
3	F04578	21/M	4 yrs	5.1.19	48	2.4	1.2	EASI 50
4	J52734	57/F	2 yrs	7.1.19	48	4.4	2	EASI 50
5	K98702	28/M	2 yrs	16.1.19	48	5.6	2.4	EASI50
6	L10589	29/F	1 ½ yrs	16.1.19	48	3.2	2.4	EASI 25
7	L10821	65/M	2 yrs	23.1.19	48	1.6	0.8	EASI 25
8	I50989	58/F	5 yrs	23.1.19	48	6.4	2.4	EASI 75
9	G52624	44/M	5 yrs	24.1.19	48	3.2	2.4	EASI 25
10	L16627	38/M	4 yrs	29.1.19	48	2.4	1.6	EASI 25
11	L17301	35/M	8 mon	6.2.19	48	3.6	3.2	EASI 25
12	K1983	55/F	5 yrs	7.2.19	48	4	2.4	EASI 25
13	L21313	42/F	7 yrs	10.2.19	48	2.4	1.6	EASI 25
14	F87188	53/M	1 ½ yrs	14.2.19	48	2.4	1.6	EASI 25
15	L15503	56/F	4 yrs	16.2.19	48	2.4	1.6	EASI 25
16	L19280	65/M	30 yrs	16.2.19	48	3.2	1.2	EASI 50
17	K87129	45/M	6 yrs	18.2.19	48	4.8	1.6	EASI 50
18	L20279	53/F	3 mon	19.2.19	48	2	0.4	EASI 75
19	K78532	43/F	3 yrs	20.2.19	48	1.6	1.2	EASI 25
20	K83327	58/F	10 yrs	5.3.19	48	4.4	1.2	EASI 50

WITH LEECH THERAPY

PATIENT'S BLOOD INVESTIGATION CHART

Sl.no	Op .no./ Ip. no.	Hb gm%		TC Cells/cu.mm		RBC 10^6 Cells/cu.mm		ESR/hr	
		BT	AT	BT	AT	BT	AT	BT	AT
1	K42480	13.4	**11.2**	7100	7000	5.3	4.6	2/10	**1/8**
2	K99583	13.2	**12.3**	8000	7700	6.2	6.1	4/10	6/14
3	L07620	14.9	**12**	6600	8800	4.8	4	10/22	12/26
4	L08891	13.7	**11.9**	9200	8500	4.7	4.2	8/16	10/20
5	K98714	11.1	11.2	8200	7700	4.1	4.3	60/120	**36/72**
6	K50073	11.4	**9.4**	11400	6800	4.2	3.5	10/22	16/34
7	L11404	14.2	**12.9**	5900	5300	4.9	4.5	12/24	14/28
8	L1707	15.7	**14.7**	8200	5700	5.1	4.8	4/10	6/14
9	0108-19	14.1	**12**	7500	10200	5.3	4.4	12/24	**8/16**
10	L15492	15	**13.3**	10000	12800	4.8	4.6	28/46	**14/30**
11	K41314	11.7	11.1	6800	7600	4.2	4.0	54/108	**38/76**
12	L17650	13.3	**12.4**	5500	5300	4.4	3.9	6/14	8/18
13	0228-19	14.4	**13.2**	8600	6700	2.8	4.0	44/90	**8/16**
14	I73962	13.5	**12.7**	10300	9300	4.6	4.3	40/80	**20/40**
15	K66805	12.8	13.1	5700	5600	4.4	4.6	18/36	**10/20**
16	K96927	9.8	9.2	7700	8800	4.5	4.3	50/100	**34/70**
17	K85275	14.7	**13.4**	6900	6400	4.7	4.4	14/30	24/50
18	L12532	14.6	**13.9**	9600	10900	4.9	4.5	10/22	**6/12**
19	L25367	12.3	**11.3**	6800	7800	4.5	4.3	10/20	16/32
20	J35932	10.2	**9.4**	6900	10400	4.1	4.5	20/42	60/122

PATIENT'S BLOOD INVESTIGATION CHART

Sl.no	Op .no./ Ip. no.	Polymorphs		Lymphocytes		Monocytes		Eosinophils	
		BT	AT	BT	AT	BT	AT	BT	AT
1	K42480	72	59	23	33	2	8	3	-
2	K99583	65	69	30	27	5	-	-	4
3	L07620	69	81	27	15	4	1	-	3
4	L08891	74	71	23	25	-	4	3	-
5	K98714	65	63	31	34	4	-	-	3
6	K50073	75	54	20	41	5	5	-	-
7	L11404	61	65	32	30	7	5	-	-
8	L1707	80	66	17	28	-	6	3	-
9	0108-19	60	73	38	22	-	5	2	-
10	L15492	58	83	37	15	5	-	-	2
11	K41314	65	71	33	27	-	-	2	2
12	L17650	53	49	43	47	4	2	-	2
13	0228-19	81	66	16	30	-	4	3	-
14	I73962	66	58	31	39	-	1	3	2
15	K66805	64	60	33	35	-	5	3	-
16	K96927	68	67	27	30	2	-	3	3
17	K85275	80	60	16	35	4	5	-	-
18	L12532	72	65	23	30	5	5	-	-
19	L25367	71	64	26	32	1	-	2	4
20	J35932	60	60	36	37	-	1	4	2

PATIENT'S BLOOD INVESTIGATION CHART

Sl.no	Op .no./ Ip. no.	Blood Sugar(F)		Blood Sugar(PP)		Blood Sugar (Random)	
		BT	AT	BT	AT	BT	AT
1	K42480	88	80	87	92	-	-
2	K99583	81	66	93	80	-	-
3	L07620	88	72	93	103	-	-
4	L08891	102	80	123	112	-	-
5	K98714	98	94	114	103	-	-
6	K50073	115	94	142	124	-	-
7	L11404	-	-	-	-	97	145
8	L1707	100	86	117	117	-	-
9	0108-19	70	56	87	99	-	-
10	L15492	-	-	-	-	86	102
11	K41314	100	103	107	142	-	-
12	L17650	89	85	102	86	-	-
13	0228-19	102	80	163	116	-	-
14	I73962	158	132	267	192	-	-
15	K66805	-	-	-	-	113	86
16	K96927	77	91	104	121	-	-
17	K85275	-	-	-	-	90	84
18	L12532	136	135	233	190	-	-
19	L25367	94	82	73	85	-	-
20	J35932	71	75	84	91	-	-

PATIENT'S RENAL FUNCTION TEST CHART

Sl.no	Op .no./ Ip. no.	Urea mg/dl		Creatinine mg/dl		Uric Acid mg/dl	
		BT	AT	BT	AT	BT	AT
1	K42480	17	19	1.0	0.9	6.6	6.9
2	K99583	14	15	1	0.9	6	5.3
3	L07620	25	18	1.4	1.2	6.2	6.0
4	L08891	32	27	0.8	0.9	4.9	4.6
5	K98714	12	13	0.8	0.9	5.9	5.8
6	K50073	12	16	0.9	0.8	3.9	4.4
7	L11404	15	11	1.1	1.1	7	7.7
8	L1707	12	8	1.2	1.2	5.5	6.2
9	0108-19	18	36	0.9	0.8	5.9	4
10	L15492	20	28	1	1.1	4.1	4
11	K41314	19	25	0.8	0.8	4.9	3.5
12	L17650	15	15	1.1	1.1	6.2	6.2
13	0228-19	23	24	1.0	1.0	5.6	5.6
14	I73962	21	37	0.9	1.0	5.8	7.3
15	K66805	9	7.8	0.8	0.8	3.2	3.3
16	K96927	12	22	0.8	0.7	3.4	3.8
17	K85275	13	12	1	1.1	4.3	5.5
18	L12532	22	14	1	0.9	4.1	5.9
19	L25367	26	28	1	1.2	5	5.5
20	J35932	14	16	0.8	0.9	4.4	4.9

PATIENT'S LIVER FUNCTION TEST CHART

Sl.no	Op .no. / Ip. no.	Total Bilirubin mg/dl		Direct Bilirubin mg/dl		Indirect Bilirubin mg/dl		SGOT IU		SGPT IU		Alk.phos mg/dl	
		BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
1	K42480	0.7	0.6	0.2	0.2	0.5	0.4	19	16	14	14	124	117
2	K99583	0.4	0.4	0.2	0.2	0.2	0.2	17	13	23	18	89	84
3	L07620	0.9	0.6	0.3	0.2	0.6	0.4	26	19	33	22	79	76
4	L08891	0.7	0.6	0.3	0.2	0.4	0.4	12	12	11	20	83	92
5	K98714	0.6	0.9	0.3	0.4	0.3	0.5	23	17	32	20	113	104
6	K50073	0.5	0.4	0.2	0.1	0.3	0.3	13	14	14	14	76	63
7	L11404	0.4	0.4	0.1	0.2	0.3	0.2	21	19	18	18	53	59
8	L1707	0.7	0.9	0.2	0.3	0.5	0.6	18	17	17	17	77	68
9	0108-19	1	1.6	0.4	0.6	0.6	1	37	26	44	22	101	65
10	L15492	0.5	0.8	0.2	0.3	0.3	0.5	33	19	53	33	100	92
11	K41314	0.6	0.4	0.2	0.1	0.4	0.3	29	24	35	29	88	96
12	L17650	0.5	0.8	0.2	0.3	0.3	0.5	14	16	21	18	54	57
13	0228-19	2.0	1.3	0.7	0.4	1.3	0.9	25	15	32	18	80	86
14	I73962	0.4	0.4	0.1	0.1	0.3	0.3	20	37	26	29	83	77
15	K66805	0.5	0.3	0.2	0.1	0.3	0.2	18	23	19	29	83	76
16	K96927	0.4	0.4	0.2	0.2	0.2	0.2	20	17	28	13	108	121
17	K85275	0.7	0.4	0.3	0.2	0.4	0.2	14	9	12	16	91	84
18	L12532	0.7	0.5	0.3	0.2	0.4	0.3	22	19	25	3	77	59
19	L25367	0.4	0.5	0.2	0.2	0.2	0.3	16	12	15	3	92	78
20	J35932	0.4	0.2	0.2	0.1	0.2	0.1	16	13	11	11	64	91

PATIENT'S URINE INVESTIGATION CHART

Sl.no	Op .no. / Ip. no.	Albumin		Sugar		Deposits	
		BT	AT	BT	AT	BT	AT
1	K42480	Nil	Nil	Nil	Nil	1-3 pus, 1-3 epi	2-3 pus, 2-3 epi
2	K99583	Nil	Nil	Nil	Nil	2-4 pus, 2-3 epi	3-4 pus, 2-4 epi
3	L07620	Nil	Nil	Nil	Nil	2-3 pus, 1-2 epi	1-2 pus, 1-2 epi
4	L08891	Nil	Nil	Nil	Nil	1-2 pus, 2-3 epi	1-2 pus, 1-2 epi
5	K98714	Nil	Nil	Nil	Nil	2-4pus, 2-4 epi	2-3 pus, 2-4 epi
6	K50073	Nil	Nil	Nil	Nil	2-3 pus, 1-2 epi	2-3 pus, 2-4 epi
7	L11404	Nil	Nil	Nil	Nil	1-3 pus, 1-3 epi	1-2 pus, 1-2 epi
8	L1707	Nil	Nil	Nil	Nil	1-2 pus, 1-2 epi	1-2 pus, 1-2 epi
9	0108-19	Nil	Nil	Nil	Nil	1-3 pus, 1-3 epi	1-2 pus, 1-2 epi
10	L15492	Nil	Nil	Nil	Nil	1-2 pus, 1-2 epi	2-4 pus, 1-2 epi
11	K41314	Nil	Nil	Nil	Nil	2-3 pus, 1-2 epi	2-3 pus, 1-2 epi
12	L17650	Nil	Nil	Nil	Nil	1-2 pus, 1-2 epi	2-3 pus, 1-2 epi
13	0228-19	Nil	Nil	Nil	Nil	1-3 pus, 1-3 epi	1-3 pus, 1-3 epi
14	I73962	Nil	Nil	Nil	Nil	3-4 pus, 1-2 epi	2-3 pus, 2-4 epi
15	K66805	Nil	Nil	Nil	Nil	3-5 pus, 2-4 epi	4-6 pus, 3-4 epi
16	K96927	Nil	Trace	Nil	Nil	2-3 pus, 2-4 epi	3-5 pus, 6-8 epi
17	K85275	Nil	Nil	Nil	Nil	2-4 pus, 2-4 epi	2-3 pus, 1-2 epi
18	L12532	Nil	Nil	Nil	Nil	4-6 pus, 1-2 epi	2-3 pus, 2-3 epi
19	L25367	Nil	Nil	Nil	Nil	1-2 pus, 1-2 epi	2-3 pus, 2-4 epi
20	J35932	Nil	+	Nil	Nil	2-3 pus, 2-3 epi	plenty of pus, 1-2 epi

WITHOUT LEECH THERAPY

PATIENT'S BLOOD INVESTIGATION CHART

Sl.no	OP .No	Hb gm%		TC Cells/ Cu.mm		RBC million Cells/ cu.mm		ESR (mm/hr)	
		BT	AT	BT	AT	BT	AT	BT	AT
1	L01684	12.4	**11.6**	10600	11500	3.8	3.6	16/32	20/40
2	L04532	14.3	14.3	4500	7000	4.5	4.6	10/22	14/30
3	F04578	15.2	15.1	8900	8100	4.5	4.5	6/12	**2/4**
4	J52734	12.4	12.4	9200	12300	4.3	4.5	13/32	**10/20**
5	K98702	15	15	6100	7200	5	4.9	12/24	**2/4**
6	L10589	10.5	10	11300	10600	5.4	5	30/62	**16/34**
7	L10821	13.5	**12.7**	4900	4200	4.6	4.3	16/32	**10/22**
8	I50989	11.4	12	11100	7900	3.9	4.2	20/42	36/72
9	G52624	17.4	**15.6**	9000	7000	7.3	6.3	2/4	4/10
10	L16627	14.9	14.5	7600	6400	5.4	5.2	8/16	**6/12**
11	L17301	14.8	14.3	7200	7200	5.3	5	2/6	20/40
12	K1983	13.1	**12.8**	12000	12500	4.1	4	50/100	34/68
13	L21313	13.2	13.3	8800	9200	4.4	4.4	6/12	34/70
14	F87188	14.7	13.2	5900	7500	5.2	4.5	6/12	20/40
15	L15503	11.4	**10.7**	8700	8300	4.7	4.5	54/110	**48/96**
16	L19280	13.6	13.4	8300	7200	4.5	4.3	8/16	**4/10**
17	K87129	13.1	13.1	7900	7800	4.7	4.6	20/40	**6/12**
18	L20279	12.4	**11.8**	4800	7400	4.4	4.1	20/42	**12/24**
19	K78532	11.1	11.2	7900	6200	3.9	4.1	6/12	34/70
20	K83327	12.7	12.9	8600	11200	4.5	4.5	14/30	26/54

PATIENT'S BLOOD INVESTIGATION CHART

Sl.no	Op .no	Polymorphs		Lymphocytes		Monocytes		Eosinophils	
		BT	AT	BT	AT	BT	AT	BT	AT
1	L01684	67	71	28	24	5	5	-	-
2	L04532	60	69	35	27	5	4	-	-
3	F04578	66	57	29	38	5	5	-	-
4	J52734	61	67	30	30	1	-	8	3
5	K98702	60	60	34	36	6	4	-	-
6	L10589	65	67	30	29	5	4	-	-
7	L10821	82	80	12	13	6	7	-	-
8	I50989	85	73	12	24	2	1	3	2
9	G52624	76	72	22	25	-	-	2	3
10	L16627	75	62	26	31	5	7	-	-
11	L17301	63	71	32	24	5	5	-	-
12	K1983	70	72	25	24	5	4	-	-
13	L21313	75	67	22	32	-	-	3	1
14	F87188	57	70	39	26	4	4	-	-
15	L15503	69	64	28	34	1	-	2	2
16	L19280	76	74	21	24	-	-	3	2
17	K87129	71	72	22	24	7	4	-	-
18	L20279	53	51	44	47	-	-	3	2
19	K78532	65	60	31	36	4	4	-	-
20	K83327	67	67	28	29	5	4	-	-

PATIENT'S BLOOD INVESTIGATION CHART

Sl.no	Op .no.	Blood Sugar(F)		Blood Sugar(PP)		Blood Sugar (Random)	
		BT	AT	BT	AT	BT	AT
1	L01684	90	95	131	128	-	-
2	L04532	85	74	116	118	-	-
3	F04578	-	-	-	-	106	93
4	J52734	74	86	109	98	-	-
5	K98702	157	94	262	142	-	-
6	L10589	82	73	94	89	-	-
7	L10821	130	126	214	199	-	-
8	I50989	102	95	94	124	-	-
9	G52624	91	85	114	108	-	-
10	L16627	89	82	102	71	-	-
11	L17301	95	104	127	156	-	-
12	K1983	98	94	112	126	-	-
13	L21313	110	114	205	208	-	-
14	F87188	-	-	-	-	86	80
15	L15503	-	-	-	-	98	127
16	L19280	-	-	-	-	163	93
17	K87129	-	-	-	-	78	76
18	L20279	-	-	-	-	91	94
19	K78532	-	-	-	-	112	205
20	K83327	100	114	180	182	-	-

PATIENT'S RENAL FUNCTION TEST CHART

Sl.no	Op .no	Urea mg/dl		Creatinine mg/dl		Uric Acid mg/dl	
		BT	AT	BT	AT	BT	AT
1	L01684	12	13	0.9	0.9	4.4	4.8
2	L04532	17	17	1.0	0.9	5.3	4.7
3	F04578	42	16	1.0	0.9	7.7	6.8
4	J52734	23	23	0.8	1.0	5.2	4.7
5	K98702	12	13	1.0	0.9	7.5	7.1
6	L10589	19	12	1.0	0.9	4.5	3.3
7	L10821	19	16	0.8	0.8	4.1	4
8	I50989	28	25	0.9	0.8	6.2	5.7
9	G52624	21	26	1	1	4.5	4.7
10	L16627	15	16	1	1	4.7	5.1
11	L17301	18	17	0.9	0.9	7	7.4
12	K1983	12	12	1	0.9	4.7	4.4
13	L21313	16	13	0.9	0.8	6.7	6.5
14	F87188	24	30	1	1.1	3.2	3.1
15	L15503	26	28	1.1	1.1	6.9	7.2
16	L19280	30	24	1.3	1.3	5.2	5.3
17	K87129	21	23	1	0.9	5.7	5.1
18	L20279	18	19	0.9	0.9	4.1	3.4
19	K78532	18	18	0.9	0.9	3.9	3.6
20	K83327	16	11	0.7	0.7	5.4	5.3

PATIENT'S LIVER FUNCTION TEST CHART

Sl.no	Op .no	Total Bilirubin mg/dl		Direct Bilirubin mg/dl		Indirect Bilirubin mg/dl		SGOT IU		SGPT IU		Alk.phos mg/dl	
		BT	AT	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
1	L01684	0.5	0.6	0.2	0.2	0.3	0.4	15	17	15	15	70	79
2	L04532	1.4	1.2	0.6	0.5	0.9	0.7	17	11	16	7	73	64
3	F04578	0.4	0.6	0.2	0.2	0.2	0.4	16	18	17	23	70	66
4	J52734	0.6	0.5	0.1	0.2	0.5	0.3	23	13	21	8	92	122
5	K98702	0.8	1.2	0.3	0.4	0.5	0.8	37	28	66	52	74	69
6	L10589	0.3	0.3	0.1	0.2	0.2	0.1	19	18	13	14	82	72
7	L10821	2	1.6	0.9	0.7	1.1	1	48	45	32	20	121	109
8	I50989	1.3	0.6	0.5	0.3	0.8	0.3	16	17	10	8	141	151
9	G52624	0.8	0.7	0.3	0.3	0.5	0.4	15	22	26	24	112	95
10	L16627	0.7	0.5	0.3	0.2	0.4	0.3	18	18	20	18	100	79
11	L17301	1	1.4	0.4	0.4	0.6	0.9	22	28	35	68	92	79
12	K1983	0.5	0.8	0.2	0.3	0.3	0.5	28	30	16	16	84	80
13	L21313	0.5	1	0.2	0.4	0.3	0.6	15	23	17	25	86	88
14	F87188	0.5	0.7	0.2	0.3	0.3	0.4	18	18	25	9	54	54
15	L15503	0.6	0.7	0.2	0.3	0.4	0.4	19	20	17	31	100	82
16	L19280	0.4	0.3	0.2	0.1	0.2	0.2	17	27	15	23	98	107
17	K87129	0.9	1.4	0.4	0.6	0.5	0.8	25	21	13	7	95	81
18	L20279	0.4	0.3	0.2	0.1	0.2	0.2	18	14	20	10	87	79
19	K78532	0.3	0.3	0.1	0.1	0.2	0.2	22	15	33	13	82	87
20	K83327	0.7	0.5	0.3	0.2	0.4	0.3	16	10	9	20	99	83

PATIENT'S URINE INVESTIGATION CHART

Sl.no	Op .no	Albumin		Sugar		Deposits	
		BT	AT	BT	AT	BT	AT
1	L01684	Nil	Nil	Nil	Nil	2-4 pus, 2-4 epi	1-2 pus, 1-2 epi
2	L04532	Nil	Nil	Nil	Nil	2-3 pus, 2-4 epi	1-2 pus, 1-2 epi
3	F04578	Nil	Nil	Nil	Nil	1-2 pus, 1-2 epi	2-4 pus, 2-3 epi
4	J52734	Nil	Nil	Nil	Nil	2-3 pus, 2-3 epi	1-2 pus, 1-2 epi
5	K98702	Nil	Nil	Nil	Nil	1-2pus, 1-2 epi	2-4 pus, 1-2 epi
6	L10589	Nil	Nil	Nil	Nil	2-3 pus, 1-2 epi	2-3 pus, 2-4 epi
7	L10821	Nil	Nil	Nil	Nil	1-3 pus, 1-3 epi	1-2 pus, 1-2 epi
8	I50989	Nil	Nil	Nil	Nil	1-2 pus, 1-2 epi	1-2 pus, 1-2 epi
9	G52624	Nil	Nil	Nil	Nil	1-3 pus, 1-3 epi	1-2 pus, 1-2 epi
10	L16627	Nil	Nil	Nil	Nil	1-2 pus, 1-2 epi	2-4 pus, 1-2 epi
11	L17301	Nil	Nil	Nil	Nil	2-3 pus, 1-2 epi	2-3 pus, 1-2 epi
12	K1983	Nil	Nil	Nil	Nil	1-2 pus, 1-2 epi	2-3 pus, 1-2 epi
13	L21313	Nil	Nil	Nil	Nil	1-3 pus, 1-3 epi	1-3 pus, 1-3 epi
14	F87188	Nil	Nil	Nil	Nil	3-4 pus, 1-2 epi	2-3 pus, 2-4 epi
15	L15503	Nil	Nil	Nil	Nil	3-5 pus, 2-4 epi	4-6 pus, 3-4 epi
16	L19280	Nil	Trace	Nil	Nil	2-3 pus, 2-4 epi	3-5 pus, 6-8 epi
17	K87129	Nil	Nil	Nil	Nil	2-4 pus, 2-4 epi	2-3 pus, 1-2 epi
18	L20279	Nil	Nil	Nil	Nil	4-6 pus, 1-2 epi	2-3 pus, 2-3 epi
19	K78532	Nil	Nil	Nil	Nil	1-2 pus, 1-2 epi	2-3 pus, 2-4 epi
20	K83327	Nil	Trace	Nil	Nil	6-8 pus, 6-8 epi	10-12 pus, 2-4 epi

DISCUSSION

The aim of the trial is to study the therapeutic effect of the drug to reduce the symptoms of Karappan such as itching, oozing etc. The clinical features of Karappan can be correlated to eczema in modern science. Eczema is a non - contagious chronic skin disease which is characterized by erythema, scaling, oedema, oozing and vesiculation.

The drugs which are mentioned in Siddha literature for the management of Karappan were selected and the study is conducted after the proposal was screened by the Screening committee of National Institute of Siddha and the trial was also approved by the Institutional Ethical Committee (IEC). The trial was registered in Clinical trial registry of India.

The trial drugs were prepared by the Author in the Gunapadam practical laboratory, National Institute of Siddha, after getting proper authentication of raw drugs from the Medicinal Botany department at National Institute of Siddha. The trial drug was prepared by the standard operating procedure as mentioned in the protocol.

The Biochemical qualitative and quantitative analysis of drugs were performed in Biochemistry lab of NIS. The safety of the trial drug usage through biochemical analysis were also ensured during the study. It revealed the presence of effective minerals.

The patients were recruited for the trial based on inclusion and exclusion criteria and after getting the consent from the patient. 40 patients were included in this study. Out of the 40 cases, 20 patient were treated with trial drug and remaining 20 patient were treated with Leech therapy along with trial drug. Separate proforma was maintained for every patient. Daily progress chart was also maintained to monitor the clinical signs and symptoms of the disease.

The treatment was aimed at normalizing the deranged thodams and providing relief from symptoms. Before treatment the patients were advised to take Agathiyar kuzhambu - 130 mg with sanganguppi juice in early morning for purgation.

The patients were treated with trial drugs Nilavaagai chooranam(internal) twice a day with water for 48 days and Thengaai thylam (external) for 48 days . Patients were instructed to take the medicines regularly and advised to follow pathiyam and to avoid exposure to allergic substances if any. Out-Patients were asked to visit the hospital once

in 7 days. For Out-Patients the internal drug was given for 7 days and external medicine was given for 7 days and the clinical assessment was done on 0^{th} day, 8^{th} day, 15^{th} day, 22^{nd} day, 29^{th} day, 36^{th} day, 43^{rd}day and 49^{th}day.

After completion of the study, the patients were advised to visit the Out-Patient ward of Department of Sirappu Maruthuvam for another 2 months for follow-up. The results observed during the study period were discussed by the author below.

Among the 40 patients included,

According to the **Gender** the disease was found to be higher in males **(**57.5%) compared to females (42.5%). In general, this disease was more common in males, hence the study reveals the same.

In **Age group** maximum numbers of patients 32.5% were in the age group of 51 to 60yrs, 27.5% were in the age group of 41 to 50yrs, 20% were in the age 61 to 70yrs and 10% were in the age of 21 to 30yrs and 31 to 40yrs. In 51 to 60 yrs the patients were hardworkers which is one of the cause for Eczema. In general, this disease was more common in this age group, hence the study reveals the same.

In my study while seeing **socio-economic status** of the patients the disease was found to be higher in the low income group 47.5%, moderate in the middle income group 37.5%, lower in the high income group15%. Increased incident is present in low income group, because they were fieldworkers. In general, this disease was more common in this low economic group, hence the study reveals the same.

In Occupational distribution, Among 40 patients35% cases were housewife, 10% were at building work, 7.5% of them were store work and IT professional, 5% were driver, security, coolie and shopkeeper, 2.5% of them were conductor, traffic police, tailor, EB officer, hair stylist, Clerk, District registrar and Agriculture officer.According to occupational distribution, the chemical handling person, housewife were mostly affected. In general, this disease was more common in people with chemical contact, hence the study reveals the same.

Regarding **Family history,** 95% of the patients showed no family history, 5% showed positive family history. The family history were less importance in disease incidence, hence the study reveals the same.

In **Diet** Non vegetarian (92%) is very higher than the vegetarian (8%). According to the Siddha literature, Non-vegetarian is one of the causative factor of this disease.Hence the study reveals the same.

In **Paruva Kaalam** among the 40 patients admitted for this study, the highest number of patients(60%) reported in Munpani Kaalam, 40% reported in Pinpani Kaalam. According to climate variation highest incidence is involved in Munpani Kaalam. According to the Siddha literature, Panikalam in which disease may occur.Hence the study reveals the same.

Regarding **Thinai,** 100% of the patients were from Neithal(Coastal Area). Vatha diseases are predominant in neithal thinai. As per the Siddha text, skin diseases are predominant in neithal thinai, which was seen in this study also.

In **Yaakai Ilakkanam,** Out of 40 patients, 60% of them were VathaUdal, 32.5% were PithaUdal and 7.5% were KabaUdal.

In **Gunam,** 100%of cases had Rasogunam.

In **Duration of illness** the maximum number of patients 65%had the duration of illness between 1-5 years, 20%of them had > 1 Year, 10%were 6-10 yrs, 5%were <10 yrs.

According to the **clinical features,** Among 40 patients included in the study, before treatment 100% of cases suffered from itching and hyperpigmentation, 97.5% of them had scaling, 77.5% of them had lichenification, 72.5% of them had oozing, 50% of them had crust formation, 47.5% of them had pain, 42.5% of them had ulceration, 40% of them had swelling, 35% of them had varicosity and 32.5% of them had erythema, after treatment 100% of cases had hyper pigmentation, 67.5% of them had scaling, 60% of them had lichenification, 37.5% of them had itching, 32.5% of them had varicosity of veins, 25% of them had pain, 17.5% of them had crust formation, 15% of them had erythema, 12.5% of them had oozing and swelling and 10% of them had ulceration .

In this study, Among 40 patients, 55% had the lesion in 2 lower limb, 40% had the lesion in 1 lower limb and 2.5% had 2 Lower limb with 2 Hand and 2 Lower limb with 1 Hand.

In **Vatham,** Samaanan, Viyaanan and Devathathan was found to be affected in all the 40 patients, Praanan and Abanan was affected in 7.5% of patients.

In **Pitham a**mong 40 cases, Prasaka pitham was affected in all the cases. Ranjaka pitham was affected in 7.5% of patients.

In **Kabam,** it was not affected in the cases.

In **Udar thaathukkal** among 40 patients, Saaram, Senneer, Oon and Kozhuppu were affected in all the cases.

In **Envagai thervukal**,

1. Niram - Vaatham was in 47.5%, Pitham was in 32.5% and Kabam was in 20%.
2. Mozhi - High pitched was in 10%, Medium pitched was in 50% and Low pitched was in 40%
3. Sparisam - Veppam was in 37.5% and Mithaveppam was in 62.5%
4. Malam - Only 7.5% was affected.
5. Naadi - The Naadinadai seen in Karappan patients treated with trial drug were Vathapitham in 60%, Pithakabam in 35%, Pithavatham 5%.

In **Neikkuri**, Pithaneer was found in 42.5% patients and Kabaneer was found in 57.5% patients.

STATISTICAL ANALYSIS

TREATMENT WITH THE TRIAL DRUG

The assessment was done using EASI Score in all the 40 patients participated in the trial. The mean value of EASI score for all the 40 patients before treatment is 4.21 and after treatment is 2.39. The p-value is less than 0.0001 which is highly significant. The reduction in the Mean was 43%.

STATISTICAL ANALYSIS

LEECH THERAPY ALONG WITH THE TRIAL DRUG

The mean value of EASI score for patients with Leech therapy is 4.8 and after treatment is 2.52.The p-value is less than 0.0001 which is highly significant. The reduction in the Mean was 47.5%.

TRIAL DRUG WITHOUT LEECH THERAPY

The mean value of EASI score for patients without Leech therapy is 3.62 and after treatment is 2.26.The p-value is less than 0.0001 which is highly significant. The reduction in the Mean was 37.5%. Hence this study reveals Leech therapy along with trial medicines is to be effective in reducing the symptoms of Karappan.

Outcome Assessment through EASI Score, Out of 40 cases, 30% of them had 25% of reduction in the score after treatment, 27.5% of them had 50% of reduction in the score after treatment, 25% of them had 75% of reduction in the score after treatment, 10% of them had no reduction in the score, which indicates the good improvement after treatment and 7.5% of them had increased in the score after treatment which indicates the eczema severity increased after treatment.

Laboratory investigations of blood and urine were done for all 40 cases. There were significant changes in blood haemoglobin and ESR parameters before and after treatment. In Leech therapy patients, there is a significant decrease in blood haemoglobin after the treatment since it is a bloodletting technique.

SUMMARY

The disease Karappan was taken for the clinical study with Nilavaagai chooranam internal medicine and Thengaai thylam for external application after scrutinized by the Screening committee of National Institute of Siddha.

The Clinical study was carried out after obtaining proper permission from IEC no. **" NIS/13-IEC/2017-1-09"** of National Institute of Siddha and the trial was registered in Clinical trial registry of India, CTRI no. **CTRI/2018/05/013794**. The medicines were prepared after obtaining proper authentication.

40 patients were treated in Ayothidoss Pandithar Hospital of National Institute of Siddha. The patients with Karappan were enrolled based on Inclusion and Exclusion criteria and detailed study was done. Separate proforma was maintained for each patient along with daily progress chart for monitor the prognosis.

Among the 40 patients 20 patients were advised Leech therapy along with the trial medicines and the remaining others received only the trial medicines. The patients who received Leech therapy along with their medications responded well since the Leech therapy is mainly aimed to reduce the symptoms of Karappan which plays a vital role in better prognosis and reduces the relapse of this disease.

Outcome Assessment through EASI Score, Out of 40 cases, 30% of them had 25% of reduction in the score after treatment, 27.5% of them had 50% of reduction in the score after treatment, 25% of them had 75% of reduction in the score after treatment, 10% of them had no reduction in the score, which indicates the good improvement after treatment and 7.5% of them had increased in the score after treatment which indicates the eczema severity increased after treatment. The results shows the good improvement of patients after treatment and thus proves the efficacy of the medicine and Leech therapy.

The patient doesn't complain of any adverse effects or difficulties during the course of treatment. Thus the drug is found to be safe and effective in the management of Karappan with and without Leech therapy.

CONCLUSION

The clinical trial proves the efficacy of the trial drugs by reducing the clinical signs and symptoms like Itching, Oozing and hyperpigmentation, etc and provides better cure. Out of 40 cases, 30% of them had 25% of reduction in the score after treatment, 27.5% of them had 50% of reduction in the score after treatment, 25% of them had 75% of reduction in the score after treatment, 10% of them had no reduction in the score, which indicates the good improvement after treatment and 7.5% of them had increased in the score after treatment which indicates the eczema severity increased after treatment. Thus these results revealed good relief from the disease after treatment.

The trial medicines were prepared from easily available ingredients and the palatability of medicine is better and the dosage is also convenient.

Leech therapy along with trial drug shows good results in patients. When these affected individuals get a better management with this trial drug and Leech therapy, it would be a great benefit for the society.

In the present study there was no adverse effect were reported in clinical trial. The Clinical trial conducted in selected patients was satisfactory and encouraging. Further studies may be taken up to establish the efficacy of the drug and Leech therapy.

DRUG REVIEW

1) நிலவாகை:

தாவரவியல் பெயர்	:	Cassia senna
Family	:	Caesalpiniaceae
பயன்படும் உறுப்பு	:	இலை
சுவை	:	கைப்பு (வெகுட்டல்)
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

நீர்மலம்போக்கி

மலமிளக்கி

குணம்:

"நிலாவாரை யின்குணந்தான் நீகேள் மயிலே!

பலமூல வாயுவெப்பு பாவைச்- சிலகிரந்தி

பொல்லாத குன்மம் பொருமுமலக் கட்டுமுதல்

எல்லா மகற்றுமென எண்"

இதனால் மூலவாயு, வெப்பு, கிரந்தி, குன்மம், நாட்பட்ட மலச்சிக்கல் இவைகள் நீங்கும்.

Chemical constituents:

Sennosides A & B, Glucoside, Kampferin, Anthraquinone, essential oil, Chrysophanic acid, Iso - rhamnetin, Calcium oxalate 12% in leaves. Oxy - methyl - anthraquinones, flavanols, Rhein, Emodin, Aloe - emodin, Sennidin - 8.8 - diglucoside, Dianthrone diglucoside.

Uses:

Laxative and purgative, used in constipation, loss of appetite, hepatomegaly, splenomegaly, indigestion, malaria, skin diseases, jaundice and anaemia.

Externally powdered leaves mixed with vinegar and made intoa plaster are applied locally in certain skin diseases.

2) மிளகு:

தாவரவியல் பெயர்	:	Piper nigrum
Family	:	Piperaceae
பயன்படும் உறுப்பு	:	விதை, கொடி
சுவை	:	கைப்பு, கார்ப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

காறலுண்டாக்கி

அகட்டுவாயகற்றி

முறைவெப்பகற்றி

தடிப்புண்டாக்கி

வெப்பமுண்டாக்கி

வீக்கங்கரைச்சி

வாதமடக்கி

நச்சரி

குணம்:

" சீதசுரம் பாண்டு சிலேத்மங் கிராணிகுன்மம்

வாதம் அருசிபித்தம் மாமூலம்- ஓதுசன்னி

யாசமபஸ் மாரம் அடன்மேகம் காசமிவை

நாசங் கறிமிளகினால் "

" கோணுகின்ற பக்கவலி குய்யவுரோ கம்வாத

சோணிதங்க முத்திற்குள் தோன்றுநோய்- காணரிய

காதுநோய் மாதர்குன்மங் காமாலை மந்தமென்றீர்

ஏதுநோய் காயிருக்கில் ஈங்கு."

இதனால், குளிர்சுரம், பாண்டு, கோழை, கழிச்சல், குன்மம், வாயு, சுவையின்மை, வெறி, மூலம், சன்னியாசம், அபஸ்மாரம், பிரமேகம், இருமல், பக்கவாதம், குய்யரோகம், சோணிதவாதம், செவிவலி, இரத்தகுன்மம், செரியாமை, காமாலை இவை போகும்.

Chemical constituents:

Sabinene (15 - 25%), Limonene (5 - 20%), Caryophyllene (10 - 15%), β - pinene (10 - 12%), α - pinene (8 - 12%), acid amides. Pungent substances - Chavicine, Piperine, Pipirine, Piperidine.

Uses:

The berries well known for their stomachic, anodyne and antibacterial properties are prescribed for treating dyspepsia, vomiting, diarrhoea and colic resulting from cold. They can also be used as an insecticide against clothes moths.

It is acrid, pungent, hot, and carminative also used as antiperiodic. Externally it is rubefacient and stimulant to the skin and resolvent. On the mucous membrane of the urethra it acts like cubes; Piperine is a mild antipyretic and antiperiodic.

Antiasthmatic activity:

Most of the herbal practioners and old people believed that addition of powdered peppercorn to green tea reduced asthma. Kim et al. reported that oral administration of piperine in different proportion to mice suppressed and reduced the infiltration of eosinophil, hyper responsiveness and inflammation due the suppression of the production of histamine, interleukin- 5, immunoglobulin E and interleukin-4.

Anti-inflammatory activity:

The in vitro anti-inflammatory activities were evaluated on interleukin 1β stimulated fibroblast like synoviocytes obtained from rheumatoid arthritis, while anti-arthritic including analgesic activities was evaluated on carrageen an induced acute paw model of pain and arthritis in rats. Te prostaglandin E2, cyclooxygenase 2, interleukin 6 and matrix metalloproteinase levels were evaluated by ELISA and RTPCR methods of analysis. Piperine treated groups were found to reduce the synthesis of prostaglandin E2in a dose dependant comportment at the concentrations of 10-100 μg/mL. It significantly inhibited the synthesis of prostaglandin E2 even at 10 μg/mL.Te expression of interleukin 6 and matrix metallo-proteinase 13 were also inhibited.

Immuno-modulatory activity:

In vitro immunomodulatory activity of piperine was evaluated to enhance the efficacy of rifampicin in a murine model of Mycobacterium tuberculosis infection. Mouse splenocytes were used to evaluate in-vitro immunomodulation of piperine for

cytokine production, macrophage activation and lymphocyte proliferation. Piperine treated mouse splenocytes demonstrated an increase in the secretion of T-1 cytokines (IFN-γ and IL-2), increased macrophage activation and proliferation of T and B cell. Protective efficacy of piperine and rifampicin (1 mg/kg) combination against Mycobacterium tuberculosis was reported due to immunomodulatory activity.

3) கடுக்காய்:

தாவரவியல் பெயர்	:	Terminalia chebula
Family	:	Combretaceae
பயன்படும் உறுப்பு	:	பிஞ்சு, பழம்
சுவை	:	முக்கிய சுவை துவர்ப்பு, அத்துடன் சிறிது இனிப்பு, புளிப்பு, கார்ப்பு, கைப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	இனிப்பு

செய்கை:

பசித்தீத்துாண்டி

உடல் உரமாக்கி

குணம்:

" தாடை கழுத்தக்கி தாலு குறியிவிடப்

பீடை சிலிபதமுற் பேதிமுடம்- ஆடையெட்டாத்

தூலமிடி புண்வாத சோணிகா மாலையிரண்

டாலமிடி போம்வரிக்கா யால்."

இது பசித்தீயைத் துாண்டிச் செரிப்பிக்க செய்து, உடற்கட்டுகளுக்கு வன்மை தந்து, முதுமை வரவொட்டாமற் செய்யும். அன்றியும் வாழ்நாள் பெருக்கையும், அறிவையும், ஆற்றலையும் தரும். ஆதலால் இ.்.தொரு காயகற்பப் பொருளாகக் கொள்ளப்படுகிறது. குடலிலுள்ள இயற்கைச் சக்தியைத் துாண்டி மலத்தை வெளிப்படுத்துதல், கிழத்தன்மையைத் தடுத்தல் ஆகியனவாம். இ.்.தன்றியும் கன்னம், கழுத்து, நா, ஆண்குறி இவ்விடங்களின் நோய்கள், காலடிப்புற்றுநோய், அதிதூலம், இடிப்புண், வாத சோணிதவாதம், காமாலை, தாவர, சங்கமவிடங்கள் இவை போம்.

Chemical constituents:

Tannin, 20 - 40% Gallic acid, 30% Chebulinic acid, Palmitic acid, Stearic acid, Oleic acid, Linoleic acid, Arachidic acid, Behenic acid. Purgative principle - Anthraquinone, Sennoside.

Uses:

The fruits are astringent, sweet, acrid, bitter, sour, thermogenic, anodyne, anti-inflammatory, vulnerary, alterant, stomachic, laxative, purgative, carminative, digestive, anthelmintic, cardiotonic, aphrodisiac, antiseptic, diuretic, febrifuge, depurative and tonic. They are useful in vitiated condition of tridosa, wounds ulcers, inflammations, gastropathy, anorexia, helminthiasis, flatulence, haemorrhoids, jaundice, hepatopathy, spleenopathy, pharyngodynia, hiccough, cough, uropathy, versical and renal calculi, cephalalgia, epilepsy, opthalmopathy, skin diseases, leprosy, intermittent fever, cardiac disorders, stomatitis, neuropathy and general debility.

Myrobalans are a safe and effective purgative, astringent and alterative.Unripe fruits are more purgative and the ripe are astringent. Ripe fruit is considered as purgative removing bile and phlegm and to adjust bile.

Immuno-modulatory activity:

Aqueous extract of T. chebula produced an increase in humoral antibody titre and delayed type hypersensitivity in mice. T. chebula found effective against the progression of advanced glycation end products-induced endothelia cell dysfunction. Crude extract of T. chebula stimulated cell mediated immune response in experimental amoebic liver abscess in golden hamsters. The formulation showed highest cure rate of 73% at 800 mg/kg body weight in hepatic amoebiasis. In immune-modulation studies, humoral immunity was improved where Tcell counts remained unaffected in the animals, but cell-mediated immune response was stimulated.

Anti-inflammatory activity:

Aqueous extract of dried fruit of T. chebula showed anti-inflammatory activity by inhibiting inducible nitric oxide synthesis. Chebulagic acid extracted from tender fruit of T. Chebula significantly suppressed the onset and progression of collageninduced arthritis in mice. T. chebula in a polyherbal formulation (Aller-7) exhibited anti-inflammatory effect against arthritis in rats.

Immunomodulatory activity:

Ethanolic extracts- Study confirms the immunomodulatory activity of ripe T. Chebula fruits as evidenced By increase in the concentration of antioxidant enzymes, GSH, T and B cells, the proliferation of which play important roles in immunity. This phenomenon also enhances the concentration of melatonin in Pineal gland as well as the levels of cytokines. Gallic acid and chebulagic acid were isolated from the extract of a herbal medicine, kasha (myrobalans: the fruit of Terminalia chebula) as active principles that blocked the cytotoxic t lymphocyte (ctl)-mediated cytotoxicity.

Anti-allergic activity:

T. chebula, ingredient of a polyherbal formulation (Aller-7), showed potent in vitro antiallergic activity. Hydro-ethanol extract of T. chebula exhibit anti-histamine and anti-spasmodic in guinea pig ileum. Oral administration of an aqueous extract of fruit significantly suppressed histamine release from rat peritoneal mast cells 117 and also significantly increased production of tumour necrosis factor (TNF) by anti-dinitrophenyl IgE.

4) தான்றிக்காய்:

தாவரவியல் பெயர்	:	Terminalia bellerica
Family	:	Combretaceae
பயன்படும் உறுப்பு	:	இலை, பழம், விதை
சுவை	:	துவர்ப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	இனிப்பு

செய்கை:

துவர்ப்பி

கோழையகற்றி

மலமிளக்கி

உரமாக்கி

குணம்:

“ சிலந்திவிடம் காமியப்புண் சீழான மேகங்

கலந்துவரும் வாதபித்தங் காலோ- டலர்ந்துடலில்

ஊன்றிக்காய் வெப்ப முதிரபித் துங்கரக்குந்

தான்றிக்காய் கையிலெடுத் தால்.

ஆணிப்பொன் மேனிக் கழகும் ஒளியுமிகும்

கோணிக்கொள் வாதபித்தக்கொள்கைபோம்- தானிக்காய்

கொண்டவர்க்கு மேகமறும் கூறா அனற்றணியும்

கண்டவர்க்கு வாதம்போம் காண்.”

இதனால், சிலந்திநஞ்சு, ஆண்குறிப்புண், வெள்ளை, குருதியழல்நோய், வளி தீ குற்றங்களால் வரும் நோய்கள் போம். மேலும் இது, உடற்கு அழகையும் ஒளியையும் கொடுத்து முக்குற்றங்களையும் தன்னிலைப்படுத்தும்.

Chemical constituents:

Gallo tannic acid, resins, Triterpines, sterols, Phenolics. 17% tannin, β - sitosterol, Gallic acid, Ellagic acid, Ethyl galate, Galloyl glucose, Chebulagic acid, Bellericanin - cardiac glycoside.

Uses:

The bark is mildly diuretic and useful in anaemia and leucoderma. The fruits are astringent, acrid, sweet, thermogenic, anti-inflammatory, anodyne, styptic, narcotic, digestive, anthelmintic, aperient, expectorant, ophthalmic, antipyretic, antiemetic and rejuvenating. They are useful in vitiated conditions of kapha and vata, cough, bronchitis, pharyngitis, insomnia, dropsy, dyspepsia, flatulence, dipsia, vomiting, haemorrhages, ophthalmopathy, strangury, splenomegaly, cephalalgia, skin diseases, leprosy, fevers, ulcers and general debility. The mature and dry fruit is constipating and is useful in diarrhoea and dysentery. The oil obtained from the seeds are useful in dyspepsia, skin diseases, leucoderma and greyness of hair.

Astringent, tonic, expectorant and laxative.

Immune response in vitro:

In vitro Phagocytic activity and lymphocyte proliferation assay were carried out in methanolic extract of on the mouse immune system (Aurasorn Saraphanchoti witthaya

et al., 2008). In both assay, stimulation of macrophage phagocytosis and maximal activation of phytohemagglutinin were observed. Finally, the authors concluded that the methanolic extract of T. belerica affected the mouse immune system, specifically both the cellular and humoral immune response in vitro.

5) சீரகம்:

தாவரவியல் பெயர்	:	Cuminum cyminum
Family	:	Apiaceae
பயன்படும் உறுப்பு	:	விதை
சுவை	:	கார்ப்பு, இனிப்பு
தன்மை	:	தட்பம்
பிரிவு	:	இனிப்பு

செய்கை:

அகட்டுவாயகற்றி

வெப்பமுண்டாக்கி

பசித்தீத்துாண்டி

துவர்ப்பி

குணம்:

" பித்தமெனு மந்திரியைப் பின்னப் படுத்தியவன்

சத்துருவை யுந்துறந்து சாதித்து- மத்தனெனும்

ராசனையு மீவென்று நண்பைப் பலப்படுத்தி

போசனகு டாரிசெயும் போர்"

இதனால், அழல் போம். வயிற்றுவலி, வாய்நோய், ஈரல்நோய், காசம், கல்லடைப்பு, குருதிக்கழிச்சல், இரைப்பு, குரற்கம்மல், மூக்குநீர் பாய்தல், வெறி, வளிநோய்கள் விலகும். இ.ந்து உடலுக்கு வலுவைத் தந்து, கண்ணுக்குக் குளிர்ச்சியையும் உண்டுபண்ணும்.

Chemical constituents:

Cuminol (or) Cuminaldehyde, Cymol (or) Cymene, Thymene, Carvone, Thymol, resin, mucilage, malates.

Uses:

Seeds are carminative, aromatic, stomachic, stimulant and astringent. Seeds are cooling in effect.

Immunomodulatory:

The oral treatment of cumin stimulated the T cells (CD4 and CD8) T1 cytokines' expression in normal and cyclosporine-An induced immune suppressed animal. Cumin also depleted T lymphocytes, decreased the elevated corticosterone levels and size of adrenal glands and increased the weight of thymus and spleen in stress induced immune suppressed mice.

Immunological effect:

The health modulating effects and immunomodulatory properties of Cuminum cyminum were evaluated using flowcytometry and ELISA in normal and immune-suppressed animals. Cuminum cyminum stimulated the T cells and Th1 cytokines expression in normal animals. Swiss albino mice subjected to Cyclosporine-A induced immunesuppression were dosed orally with Cuminum cyminum (25, 50, 100 and 200 mg/kg) on consecutive days. The results showed that administration significantly increased T cells (CD4 and CD8) count and Th1 predominant immune response in a dose dependent manner, suggesting immunomodulatory activity through modulation of T lymphocytes expression. In restraint stress induced immunesuppressed animals, Cuminum cyminum countered the depleted T lymphocytes, decreased the elevated corticosterone levels and size of adrenal glands and increased the weight of thymus and spleen.

6) வாலுளுவை:

தாவரவியல் பெயர்	:	Celastrus paniculatus
Family	:	Celastraceae
பயன்படும் உறுப்பு	:	இலை, விதை, நெய்
சுவை	:	கைப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

காமம்பெருக்கி

வெப்பமுண்டாக்கி

உடற்றேற்றி

வியர்வைப்பெருக்கி

நாடியுரமாக்கி

குணம்:

“ வயிற்றுக் கடுப்புவலி மாறாக் கிராணி

பயித்தியங் காசமல பந்தஞ்- சயிக்கவொணாச்

சூதிகா வாதமும் போந் தொல்வா லுளுவைவிதைக்

காதிநவ சித்தர் மொழி யாம்”

இது வயிற்றுக் கடுப்பு, கடுப்புடன் கூடிய குருதிக் கழிச்சல், இருமல், அனல், ஊசியில் குத்துவதுபோல உண்டாகும் கைகால் நீத்தல் போம். வயிற்றை வலிக்கும்.

Chemical constituents:

Active principle - Celastrine, Paniculatin, tannin. Sesquiterpene alkaloids, Celapagine, Celapanigine, Celapanine, hydrolysis gave Polyalcohol A, C & D.

Uses:

The bark is abortifacient, depurative and a brain tonic. The leaves are emmengogue and the leaf sap is a good antidote for opium poisoning. The seeds are acrid, bitter, thermogenic, emollient, stimulant, intellect promoting, digestive, laxative, emetic, expectorant, appetiser, aphrodisiac, cardiotonic, anti-inflammatory, diuretic, emmenagogue, diaphoretic, febrifuge and tonic, and are useful in vitiated conditions of vatam and kapham, abdominal disorders, leprosy, pruritis,skin diseases, paralysis, cephalalgia, arthralgia, asthma, leucoderma, cardiac debility, inflammation, strangury, nephropathy, amenorrhoea, dysmenorrhoea and fever and for stimulating the intellect and sharpening the memory. The seed oil is bitter, thermogenic and intellect promoting and is useful in abdominal disorders, beri-beri and sores.

Oil is rubefacient; seeds are alterative, stimulant and nervine; seeds and oil stimulate intellect and sharpen memory.

Analgesic and Anti-inflammatory:

A methanolic extract of the flowers of C. paniculatus exhibits analgesic and antiinflammatory activities in the hot water tail immersion test in mice and carrageenan induced pedal edema in rats.

7) சிறுநாகப்பூ:

தாவரவியல் பெயர்	:	Mesua ferrea
Family	:	Clusiaceae
பயன்படும் உறுப்பு	:	இலை, மொக்கு, பூ, விதை, வேர், பட்டை
சுவை	:	சிறுகைப்பு, துவர்ப்பு
தன்மை	:	தட்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

துவர்ப்பி

அகட்டுவாயகற்றி

மணமூட்டி

காறலுண்டாகி

நீர்மலம்போக்கி

வியர்வைப்பெருக்கி

குணம்:

" சிறுநாகப் பூவினது செய்கைதனைச் சொல்வோம்

குறியாகும் மேகத்தைக் கொல்லும்- நெறிவிட்டுத்

தீதாய்ச் செல்வாயுவையுந் தீர்க்குமிரு மற்போக்கும்

கோதாய்! இதையறிந்து கொள்."

இது வெள்ளை, இருமல், கழிச்சல் போக்கும். மேலும், நீரடைப்பு, குருதிப் போக்கு, புண், கொப்புளம், காலெரிச்சல் ஆகியவை போக்கும்.

Chemical constituents:

Oleo - resin, tannin, Palmitic acid, Stearic acid, Oleic acid and Linoleic acid, Palmitostearo - olein, Dipalmito - olein, Distearo - olein, Stearo diolein, Palmito - diolein, Linoleodiolein, Triolein.

Uses:

The flowers are astringent, bitter, acrid, mildly heating, anodyne, sudorific, digestive, carminative, constipating, anthelmintic, diuretic, alexipharmic, expectorant, stomachic, haemostatic, aphrodisiac, febrifuge and cardiotonic. They are useful in vitiated conditions of pitham and vatam, asthma, cough,hiccough, halitosis, leprosy, scabies,dermatopathy, pruritis, pharyngodynia, vomiting, dysentery, haemorrhoids, ulcers, burning sensation of the feet, dipsia, impotency, leucorrhoea, haemoptysis, strangury, cephalagia, fever and cardiac debility. The seed oil is used in vitiated conditions of vata and skin diseases.

Dried blossoms, root and bark are bitter, aromatic and sudorific, bark is mildly astringent, unripe fruits are aromatic, acrid and purgative. Oleo resin exuding from the bark, root etc. is aromatic and demulcent. Pericarp of the fruit is astringent. 'Blossoms are astringent and stomachic'. Dried flowers are astringent and stomachic; also stimulant and carminative.

Immunomodulatory activity:

M. ferrae flower buds in a poly herbal formulation; ACII was studied for immune modulation effect on radiation induced immune suppression. It is observed high increase in circulating antibody especially in animals treated with ACC II further there is no change in the weight of body. WBC count increased. Whereas no change in hemoglobin was seen in normal or drug treated animals. There is also no change in lymphocyte, neutrophil ratio. Bone marrow get improved along with this improvement is seen in α-esterase cells too, thymus weight increases. Although ACII effect is seen in normal and cyclophosphamide treated animals. By using various specific and nonspecific immune response in animals for seeing Immuno modulatory activity of M.ferrae seed oil was studied by isolating mesuol from M.ferrae seed. It is observed that in humoral response model. Mesuol cause increase in dose dependent in antibody (9th and 6th day) as well as induced. Immuno suppression which is seen in sheep RBC (7th and 14th day) of experiment. Where as in cellular immune response model, an increase in Paw volume was observed on 23rd day in rat treated with SRBC (Sheep RBC). Further mesuol help in restoring hematological property in cyclophosphamide induced myelosuppression model. So after discussing all this report indicate clearly the modulatory activity of mesuol.

Anti-inflammatory activity:

Using albino rats Mesuaxanthone A and Mesuaxanthone B (MXA and MXB) from M. Ferrae were observed by carrageenan induced hind Paw oedema and granuloma pouch tests. MXA shows 37% MAB showed 49% reduction when compound with normal group. But it is known than xanthones show signifcant anti-inflammatory property in normal and adrenalectomised rats. So xanthones used here for its important inflammatory activity.

8) ஏலம்:

தாவரவியல் பெயர்	:	Elettaria cardamomum
Family	:	Zingiberaceae
பயன்படும் உறுப்பு	:	பழம்
சுவை	:	கார்ப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

வெப்பமுண்டாக்கி

அகட்டுவாயகற்றி

பசித்தீத்துாண்டி

குணம்:

" தொண்டை வாய்கவுள் தாலுகு தங்களில்

தோன்றும் நோயதி சாரம்பன் மேகத்தால்

உண்டை போல்எழுங் கட்டி கிரிச்சரம்

உழலை வாந்தி சிலந்தி விஷஞ்சுரம்

பண்டை வெக்கை விதாகநோய் காசமும்

பாழுஞ் சோமப் பிணிவிந்து நட்டமும்

அண்டை யீளைவன் பித்தம் இவைக்கெல்லாம்

ஆல மாங்கமழ் ஏல மருந்ததே..."

இது, தொண்டை, தாள், வாய், கீழ்வாய் இவைகளில் உண்டாகும் நோய்களையும், இருமல், கழிச்சல், நீர்ச்சுருக்கு, நெஞ்சின் கோழைக்கட்டு, சிலந்தி நஞ்சு இவற்றையும் போக்கும். அழலை ஆற்றும். வெண்ணீரைப் (விந்து) பெருக்கும்.

Chemical constituents:

Terpinyl acetate, Cineole, free terpineol, Limonene, starch, potassium salts, nitrogenous mucilage, yellow colouring matter ligneous fibre and ash containing manganese.

Uses:

The seeds are aromatic, acrid, sweet, cooling, stimulant, carminative, digestive, stomachic, diuretic, cardiotonic, abortifacient, alexeteric, expectorant and tonic and are useful in asthma, bronchitis, haemorrhoids, strangury renal and vesical calculi, halitosis, cardiac disorders, anorexia, dyspepsia, gastropathy, hyperdipsia, burning sensation, debility and vitiated conditions of vatam.

Powerful aromatic, stimulant, carminative, stomachic and diuretic. These properties are due to the essential oil contained in the seeds.

9) இலவங்கப்பட்டை:

தாவரவியல் பெயர்	:	Cinnamomum verum
Family	:	Lauraceae
பயன்படும் உறுப்பு	:	பட்டை
சுவை	:	காரமும் இனிப்புமுடையது
தன்மை	:	தட்பம்
பிரிவு	:	இனிப்பு

செய்கை:

வெப்பமுண்டாக்கி

அகட்டுவாயகற்றி

காமம்பெருக்கி

குணம்:

“ தாதுநட்டம் பேதி சருவவிஷம் ஆகியநோய்

பூதகிர கஞ்சிலந்திப் பூச்சிவிடஞ்- சாதிவிடம்

ஆட்டுமிரைப் போடிருமல் ஆகியநோய்க் கூட்டமற

ஓட்டமில வங்கத் துரி.

சன்னலவங் கப்பட்டை தான்குளிர்ச்சி யுண்டாக்கும்

இன்னுமிரத் தக்கடுப்பை யீர்க்குங்காண்- முன்னமுறும்

உந்திக் கடுப்பகற்றும் உண்மூலப் புண்போக்கும்

கந்தமிகு பூங்குழலே! காண்”

இது பாம்புக்கடி, சிலந்திப்பூச்சிக்கடி முதலியவைகளின் நஞ்சைப் போக்கும். இ.ந்து இரைப்பு, இருமல், வயிற்றுக்கடுப்பு, உள்மூலப்புண் இவைகளைப் போக்கும். உடற்குக் குளிர்ச்சியை உண்டுபண்ணும்.

Chemical constituents:

Eugenol, Cinnamaldehyde, Cinnamon oil, Trans - cinnamaldehyde, essential oil, Terpene. Root - Eugenol, Saffrol, Benzaldehyde and Terpene.

Uses:

The bark is acrid, bitter, sweet, aromatic, astringent, aphrodisiac, deodorant, stimulant, alexeteric, expectorant, febriguge, diuretic and carminative.It is useful in bronchitis, asthma, cephalalgia, odontalgia, cardiac diseases, diarrhoea, uropathy, nausea and vomiting, flatulence, fever, halitosis and restoring normal skin colour on the face. Cinnamon oil is stomachic, carminative, emenagogue and styptic and is useful in anorexia, inflammations, stimachalgia vitiated conditions of vatam , odontalgia, vomiting and tubercular ulcers.

Astringent, stimulant and carminative.

Anti-inflammatory activity:

In vitro various essential oils, including cinnamon bark oil, used in the treatment of rheumatism and inflammation as well as some of their main constituents and phenolic compounds known for their irritant and pungent properties were screened for activity as inhibitors of prostaglandin biosynthesis. A combination of a prostaglandinsynthesizing cyclo-oxygenase system from sheep seminal vesicles and an HPLC separation technique

for the metabolites of arachidonic acid was used as test system. Cinnamon bark oil showed inhibitory cyclo-oxygenase activity. The active compound is probably eugenol (Wagner et al., 1986).

Anti-inflammatory activity:

In vivo Dry ethanolic extract of Cinnamomum zeylanicum administered orally to rats at 400 mg/kg body weight showed an anti-inflammatory effect against chronic inflammation induced by cotton pellet granuloma indicating an anti-proliferative effect (Atta & Alkofahi, 1998).

Eugenol (Cinnamomum verum)

Anti-inflammatory:

The study concluded beneficial effect of eugenol administrated at 5 and 10 mg/kg per B.W. against lipopolysaccharide (LPS) induced acute lung injured (ALI) mice, for this purpose 0.5 mg/kg LPS was intratracheally infused. Examination of lung tissues and bronchoalveolar lavage fluid (BALF) suggested anti-inflammatory effect due to reduced production of pro-inflammatory cytokines.

Additionally, in vitro studies revealed that clove oil polyphenol inhibits nuclear factor-kB (NFkB) activation in lipopolysaccharides initiated macrophages induced by inactivated cyclooxygenase activity (COX-2) and tumor necrosis factor (TNFa). Cyclooxygenase activity is prompted by LPS, cytokines and growth factors. During pulmonary inflammation in mouse, elevated TNF-a and neutrophils were significantly reduced by eugenol at a dose of 160 mg /kg per body weight. It also protected against chemically induced dysfunction of macrophages and balanced the pro-inflammatory mediators.

Immunomodulatory activity:

Mahapatra et al. investigated the in vitro protective effect of eugenol (1–20 μg/mL) against nicotine-induced (10 mM nicotine) cellular damage in mice peritoneal macrophages by analysing the radical generation, lipid, protein, DNA damage and endogenous anti-oxidant status. The results indicated that eugenol could be used as modulator of nicotineinduced cellular damage and immunomodulatory drug against nicotine toxicity.

10) கடுகுரோகிணி:

பெயர்	:	Picrorhiza kurroa
Family	:	Scrophulariaceae
பயன்படும் உறுப்பு	:	வேர்
சுவை	:	கைப்பு, கார்ப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

முறைவெப்பகற்றி

பெருங்கழிச்சலுண்டாக்கி

பசித்தீத்துாண்டி

குடற்புழுவகற்றி

குணம்:

" மாந்தஞ் சுரமையம் வாயுகரப் பானாமஞ்

சேர்ந்தமலக் கட்டு திரிதோடம்- போந்தபொட்டுப்

புண்வயிறு நோயிவைபோம் பொற்கொடியே- பேதியுண்டாம்

திண்கடுகு ரோகணிக்குத் தேர்."

மாந்தம், சுரம், ஐயப் பெருக்கு, கரப்பான், சீதக் கழிச்சல், வயிற்றுவலி, புண்கள், வளி நோய்கள் என்னும் இவைகள் போம்.

Chemical constituents:

Phenylethanoid, Phenolic glycosides, Picrorhizin, glucose, wax, Cathartic acid, Kutkin, Kurrin, D - mannitol, Vanillic acid, Kutkiol, Kutkisterol.

Uses:

The rhizomes are bitter, acrid, cooling, laxative, carminative, digestive, stomachic, anthelmintic, anti-inflammatory, depurative, cardiotonic, galactopurifier, expectorant, antipyretic and antiperiodic and purgative in large doses. They are useful in vitiated conditions of kapham and pittam, burning sensation, constipation, gastropathy, flatulence, colic, anorexia, verminosis, inflammations, leucoderma, leprosy, skin diseases, cardiac disorders, hypotension, cough, asthma, bronchitis, hiccough, fever,

bilious fever, intermittent fever, diabetes, jaundice, haemorrhoids, impurity of breast milk and general debility.

In small doses, it is a bitter stomachic and laxative, and in large doses, a cathartic. It is reputed as an antiperiodic and cholagogue.

Anti-asthmatic activity:

P.kurroa has been studied extensively for its anti-asthmatic activity. The crude extract of P.kurroa roots reduced the frequency and severity of asthmatic attacks and the need for regular bronchodilators. The activity has been attributed to compounds such as androsin and apocynin, which have been shown to inhibit allergen and PAF- induced bronchoconstriction. Dorsch W et al (1991) reported the major anti asthmatic principle of Picrorhiza kurroa, was used as a lead compound for detailed structure- activity relationship. More than 25 synthesized or commercially available acetophenones with modified substitution patterns were screened in the Plethysmographic guinea pig model using PAF and/or ovalbumin as challenging agents for the generation of bronchial constriction. Whereas the aglycones in most cases were more effective than the corresponding glycosides, substitution patterns in position 3 and 4 of the phenyl ring and the keto function attached to the phenyl ring were found to be essential for marked anti asthmatic effect. 3,5-Dimethoxy-4-hydroxyacetophenone showed the highest activity of all tested compounds. Initial in vitro studies on the mode of action could not sufficiently explain the mechanism of antiasthmatic activity. Mahajani S.S. et al (1977) reported 4 weeks pre-treatment with disodium cromoglycate (DSCG) and the powdered roots of the herb Picrorhiza kurroa, rendered guinea pigs less sensitive to histamine when compared with appropriate controls. The bronchodilator effects of isoprenaline and adrenaline were found to be markedly enhanced. The severity and duration of the allergic bronchospasm was significantly less in animals pretreated with the two drugs. Furthermore, the total histamine content of the lung tissue in animals pretreated with DSCG and Picrorhiza kurroa was significantly less than that in the untreated controls. The pretreatment was also found to exhibit inhibitory effect on the immunological release of histamine and SRS-A from chopped lungs.

Immunomodulatory activity:

The effect of an ethanolic extract of each drug was studied on delayed type hypersensitivity, humoral responses to sheep red blood cells, skin allograft rejection, and

phagocytic activity of the reticuloendothelial system in mice. Picrorhiza kurroa was found to be a potent immunostimulant of both cell mediated and humoral activity. Amit Gupta et al (2006) evaluated the effects of biopolymeric fraction RLJ-NE-205 from Picrorhiza kurroa on the in vivo immune function of the mouse. Balb/c mice were treated with the biopolymeric fraction RLJ-NE205(12.5, 25 and 50 mg/kg body weight) for 14 days with sheep red blood cells (SRBC) as an antigen Haemagglutination antibody (HA) titre, plaque forming cell (PFC) assay, delayed type hypersensitivity (DTH) reaction, phagocytic index, proliferation of lymphocytes, analysis of cytokines in serum and CD4/CD8 population in spleen (determined by flow cytometry) were studied. At the dose of 50mg/kg significant increases in the proliferation of lymphocytes and cytokine levels in serum were observed.

Anti-inflammatory activity:

Apocynin is a constituent of root extracts of Picrorhiza and has been reported to possess antiinflammatory properties in laboratory animals. Apocynin concentration dependently inhibited the formation of thromboxane A2, whereas the release of prostaglandins E2 and F2α was stimulated. Apocynin inhibited arachidonicacid induced aggregation of bovine platelets, possibly through inhibition of thromboxane formation. The rhizome of Picrorhiza scrophulariiflora is used to treat inflammatory diseases as a traditional medication. The ethanol extract of Picrorhiza scrophulariiflora in rabbits improves accelerated atherosclerosis through inhibition of redox-sensitive inflammation.

Anti- allergic and Anti- anaphylactic activity:

C.C.Baruah et al (1998) studied a standardized iridoid glycoside fraction from the root and rhizome of Picrorhiza kurroa at a dose of 25mg/kg inhibited passive cutaneous anaphylaxis in mice, rats and protected mast cells from degranulation in a concentration dependant manner. Its effect was also studied in sensitised guinea pig ileum preparation in vitro (Schultz-Dale study) and in normal guinea pig in vivo (Konzett- Rossler, in preparation). There was inhibition of the SchultzDale response in sensitised guinea pig ileum, but the bronchospasm induced by histamine could not be antagonised or prevented by Picroliv, indicating the absence of a direct post- synaptic histamine receptor blocking activity.

Immunostimulatory activity:

Sharma ML, Rao CS and Duda PL studied extract of Picrorhiza kurroa leaves (PKLE) was found to stimulate the cell mediated and humoral components of the immune system as well as phagocytosis in experimental animals. PKLE elicited a dose-related increase in SRBC, induced 4hr (early) and24hr (delayed) hypersensitivity reactions in mice and rats, andhorse serum induced Arthus reaction in guinea pigs. It also enhanced the humoral immune responses in mice and rats and phagocytic function of the cells of the reticuloendothelial system in mice. PKLE exhibited no mitogenic activity but augmented the responsiveness of murine splenocytes to T cells mitogens phytohaemagglutinin and concanavalin A and B cell mitogen lipopolysaccharide.

11) சிவதை:

தாவரவியல் பெயர்	:	Operculina turpethum
Family	:	Convolvulaceae
பயன்படும் உறுப்பு	:	வேர்
சுவை	:	கைப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

நீர்மலம்போக்கி

குணம்:

" உள்ள மலமும் உதவார்த்த மும்வயிற்றைக்

கொள்ளுபித்த வாதமும்போங் கூறுங்கால்- பிள்ளைகட்குச்

செப்பு கிரசமும்போந் தேனே! யுலகத்துள்

தப்பில் சிவதைக்குத் தான்."

இதனால் உள்மூலம், வயிற்றுள்ளுண்டாகும் கேடுகள், தீவளி (பித்தவாத) நோய்களும் சிறுபிள்ளைகளுக்குண்டாகும் சில நோய்களும் போம்.

Chemical constituents:

Glucoside - Turpethin. Glycosidic resin, α - turpethein, β - turpethein.

Uses:

The roots are bitter, acrid, sweet, thermogenic, purgative, carminative,anthelmintic, expectorant, antipyretic, hepatic, stimulant, hydragogue. They are useful in colic, constipation, dropsy, vitiated conditions of vatam, paralysis, myalgia, arthralgia, pectoralgia, bronchitis, obesity, helminthiasis, gastropathy, ascitis, inflammations, intermittent fever, leucoderma, pruritis, ulcers, erysipelas, haemorrhoids, tumors, jaundice, consumpation and opthalmia.

Ipomoea turpethum Root root bark of 'white turpeth' which are in common use are cathartic and laxative; the dark variety 'black turpeth' is drastic in action like hellebore black and therefore it is not in use.

Anti-inflammatory activity:

An experimental study was carried out (Rajashekar M et al; 2006) to evaluate the effect of oral administration of root powder of O. turpethum and its polyherbal formulation Avipattikarchurna on rat paw edema in albino rats. Results indicated that pretreatment with the root powder of O. turpethum and Avipattikara churna (100 mg/kg body weight) reduced the formalin induced edema volume to the extent of 36.45% and 27.11% respectively. Antiinflammatory potential of different extracts (ethanolic, aqueous and ethereal) of O. turpethum has been reported in carrageenan-induced paw oedema, cotton pellet-induced granuloma and formalin induced arthritis animal model of rats. The aqueous extract was reported more potent fraction in all three animal models.In another study, pre-treatment of roots of Operculina turpethum and its polyherbal formulation Avipattikar Churna (100 mg/kg body weight) showed anti-inflammatory activity in rat paw oedema induced by formalin in experimental animal model.

CLINICAL TRIALS

In an open, uncontrolled clinical study (Shailej Gupta; 2009), powder of O. turpethum roots administered as a single dose of 30 gm with fermented rice water (Kanji) for Virechana procedure produced strong purgation in 30 patients of Amavata i.e. Rheumatoid Arthritis. This purificatory procedure produced statistically significant improvement in the subjective parameters like joint pain, stiffness, swelling, tenderness, and in global assessment for overall improvement. Also there was a statistically significant reduction in the ESR values in the study patients. Many patients may not

tolerate one time dose of 30 Gms Trivrit powder. So it should not be recommended for each and every patient of rheumatoid arthritis.

12) தாளிசப்பத்திரி:

தாவரவியல் பெயர்	:	Taxus baccata
Family	:	Pinaceae
பயன்படும் உறுப்பு	:	இலை
சுவை	:	கார்ப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

பசித்தீத்துாண்டி

அகட்டுவாயகற்றி

கோழையகற்றி

உரமாக்கி

குணம்:

" நாசி களப்பிணிகள் நாட்பட்ட- காசஞ்சு

வாசம் அருசி வனமங்கால்- வீசிவரு

மேகமந்தம் அத்திசுரம் விட்டேகுந் தாளிச்சத்தால்

ஆகுஞ் சுகப்பிரச வம்."

இதைக் கழிச்சல், சுரம், நாட்பட்ட இருமல், இரைப்பு, வாந்தி, வாய்வு, அசீரணம், அத்திசுரம் இவைகளுக்கு வழங்கலாம். இதனால், சுகப்பிரசவமுண்டாகும்.

Chemical constituents:

Crystalline alkaloid - Taxine, essential oil.

Uses:

Leaves are carminative, stomachic, tonic, astringent, antispasmodic and expectorant.

13) ஜாதிக்காய்:

தாவரவியல் பெயர்	:	Myristica fragrans
Family	:	Myristicaceae
பயன்படும் உறுப்பு	:	காய்
சுவை	:	துவர்ப்பு, கார்ப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

வெப்பமுண்டாக்கி

அகட்டுவாயகற்றி

மூர்ச்சையுண்டாக்கி

மணமூட்டி

காமம்பெருக்கி

உரமாக்கி

குணம்:

" தாது நட்டம் பேதி சருவாசி யஞ்சிர நோய்

ஓதுசுவா சங்காசம் உட்கிரணி- வேதோ

டிலக்காய் வரும்பிணிபோம் ஏற்றமயல் பித்தங்

குலக்கா யருந்துவர்க்குக் கூறு."

இதனால் விந்து குறைவு, பெருங்கழிச்சல், வாயுவினாலுண்டாகும் நோய், தலைவலி, இரைப்பு (சுவாசம்), இருமல் (காசம்), நாட்பட்ட கழிச்சல், வெப்பத்தை முன்னிட்டு வரும் பிணிகள் இவைகள் போகும். ஆனால், மயக்கத்தைத் தரும். மேலும் இது, வயிற்றுவலி, வயிற்றுப்பொருமல், அக்கினி மந்தம் இவைகளையும் போக்கும்.

Chemical constituents:

Myristicin, Myristic acid, Essential oil - Sabine, Pinene, Camphene, p - Cymene, Phellandrene, Terpinene, Limonene, Myrcene, Terpene derivates - Linalool, Geraniol, Terpinol, Phenylpropanoids - Myristicin, Elemicin, Safrole.

Uses:

Nutmeg is aromatic, stimulant and carminative;in large doses, narcotic. Concrete oil is used as a rubefacient; volatile oil is stimulant, aperient and carminative. Mace is carminative and aphrodisiac. Wood is astringent. The content of an ethereal oil 6-10% in combination with myristicine gives the nutmeg a tonicising action on the stomach; its effect on the mucous membrane of the urinary passages is irritative, which may account for its use as an aphrodisiac and abortifacient (Dr.Kobert). In large doses, nutmeg oil has anarcotic action and produces nausea, somnolence and headaches (Dr.Marfori – Bachem). Drs.Paracelsus, Lonicerus and Matthiolus, used nutmegs with a constipating action; also as a diuretic against gastric catarrh and cardiac fibrillation.

Anti-inflammatory activity:

The anti-inflammatory activity of Myristica fragrans was evaluated in carrageenan-induced edema in rats and acetic acid induced vascular permeability in mice. It was observed that the antiinflammatory effect was approximately the same as that of Indomethacin. The results propose that myristicin present in mace is responsible for antiinflammatory action.The antiinflammatory property of myristicin might be due to inhibition of chemokines, cytokines, nitrous oxide and growth factors in double stranded RNA (dsRNA) stimulated macrophages via the calcium pathway.The methanol extract from seeds of Myristica fragrans used for the treatment of inflammatory diseases also had inhibitory effects on nitric oxide (NO) production.

14) கிராம்பு:

தாவரவியல் பெயர்	:	Syzygium aromaticum
Family	:	Myrtaceae
பயன்படும் உறுப்பு	:	பூ
சுவை	:	காரமும் விறுவிறுப்புமுள்ளது
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

இசிவகற்றி

அகட்டுவாயகற்றி

பசித்தீத்துாண்டி

குணம்:

“ பித்த மயக்கம் பேதியொடு வாந்தியும்போம்

சுத்தவிரத் தக்கடுப்புந் தோன்றுமோ- மெத்த

இலவங்கங் கொண்டவருக் கேற் சுகமாகும்

மலமங்கே கட்டுமென வாழ்த்து.

சுக்கிலநட் டங்கர்ண சூர்யவியங்க லாஞ்சனந்தாட்

சிக்கல்விடாச் சர்வா சியப்பிணியு- மக்கிக்குட்

டங்கப் பூவோடு தரிபடருந் தோன்றிலில்

வங்கப்பூ வோடுரைத்து வா.”

இது மயக்கம், பேதி, வாந்தி, குருதிக்கழிச்சல், நாட்பட்ட கழிச்சல், எருவாய்க்கடுப்பு, செவிநோய், சிவந்தமச்சம், கறுத்தமச்சம், கண்ணில் பூ, படைகள் ஆகியவற்றை நீக்கும்.

Chemical constituents:

Protein, Carbohydrates, Tannin, Oleanolic acid, Eugenol acetate, Caryophyllene, Eugenol.

Uses:

The cloves are acrid, bitter, aromatic, refrigerant, ophthalmic, digestive, carminative, stomachic, stimulant, antispasmodic, antibacterial, rubefacient,aphrodisiac, appetiser, expectorant, emollient, anthelmintic, sialogogue, rejuvenating, galactopurifier, diuretic, febrifuge and tonic. They are useful in halitosis, odontalgia, opthalmopathy, flatulence, colic, gastropathy, anorexia, cough, asthma, vitiated comditions of kapham and pitham, burning sensation, skin diseases, helminthiasis, agalactia, impurity of breast milk, strangury, fever, cephalalgia, neuralgia, lumbago, nostalgia, dental caries, hyperacidity, vomiting, dipsia, hepatopathy, general debility and tuberculosis. The oil is useful in catarrh, cough, bronchitis, vitiated conditions of vata, gastrohelcosis, flatulence, colic, skin diseases, dyspepsia, vomiting, odontalgia, dental caries and cephalalgia. Externally the oil is used as a rubefacient and counterirritant.

Bark, leaves and seeds are astringent. Berry as a whole is astringent. Juice of the fruit is stomachic, astringent, diuretic and anti diabetic.

Antiallergic effects:

Kim et al (1998) investigated the effect of a hot water extract (DER app. 14:1) of clove on the immediate hypersensitivity in rats. The extract inhibited the compound 48/80-induced systemic anaphylaxis in rats with an IC50 of 31.25 mg/kg when administered intraperitoneally. The extract also inhibited the local immunoglobulin E-mediated passive cutaneous anaphylactic reaction (IC50 = 17.78 mg/kg, i.v., IC50 = 19.81 mg/kg, p.o.). The extract also inhibited dose-dependently the induced histamine release from rat peritoneal mast cells. Clove essential oil increased the total white blood cell count and enhanced the delayed-type hypersensitivity response in mice. Moreover, it restored cellular and humoral immune responses in cyclophosphamide-immunosuppressed mice in a dose-dependent manner. The immunostimulatory activity found in mice treated with clove essential oil is due to improvement in humoral and cell mediated immune response mechanisms (Carrasco et al 2009).

15) திப்பிலி:

தாவரவியல் பெயர்	:	Piper longum
Family	:	Piperaceae
பயன்படும் உறுப்பு	:	காய், அரிசி
சுவை	:	கார்ப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	இனிப்பு

செய்கை:

வெப்பமுண்டாக்கி

அகட்டுவாயகற்றி

குணம்:

“இருமல் குன்மம் இரைப்பு கயப்பிணி

ஈளை பாண்டு சந்யாசம் அரோசகம்

பொருமல் ஊதை சிரப்பிணி மூர்ச்சைநோய்

பூரிக் குஞ்சல தோடம் பீலிகமும்

வரும லப்பெருக் கோடு மகோதரம்

வாதம் ஆதிமுத் தோடஞ் சுரங்குளிர்

பெருமாலைப்புரி மேகப் பிடகமும்

பேருந் திப்பிலிப் பேரங்குரைக்கவே.”

இதனால் இருமல், குன்மம், இரைப்பு, ஐயப்பிணி, ஈளை, பாண்டு, மயக்கம், சுவையின்மை, பொருமல், தலைவலி, மூர்ச்சை, நீரேற்றம், தொண்டைநோய், மூக்கு- காது- கண் நோய்கள், புழுநோய்கள், கண் இடுக்கு ஆகியவை நீங்கும். நீற்றவிந்து இறுகும்.

Chemical constituents:

Piperine, Piperlonguminine, Piplartine, resin, volatile oil, starch, gum, fatty oil, inorganic matter and alkaloid.

Uses:

Roots and fruiting spikes are used in treating diarrhoea, indigestion, jaundice, urticarial, abdominal disorders, hoarseness of voice, asthma, hiccough, cough, piles, malarial fever, flatulence, vomiting, thirst, oedema, earache, wheezing, chest congestion, throat infections, worms, sinusitis. This considered as rejuvenating plant.

Infusion is stimulant, carminative and alterative, tonic more powerful than black pepper; also aphrodisiac, diuretic, vermifuge and emmenagogue. Externally rubefacient. Root is stimulant.

Piperine (Piper nigrum, Piper longum)

Antiasthmatic activity:

Kim et al., 2009 induced asthma in Balb/c mice by ovalbumin sensitization. Piperine (4.5 and 2.25 mg/kg) was orally administered 5 times a week for 8 weeks and it was found that piperine- treated groups had suppressed eosinophil infiltration, allergic airway inflammation and airway hyper responsiveness and these occurred by suppression of the production of interleukin-4, interleukin-5, immunoglobulin E and histamine.

16) செவ்வியம்:

தாவரவியல் பெயர்	:	Root of Piper nigrum
Family	:	Piperaceae
பயன்படும் உறுப்பு	:	வேர்
சுவை	:	கைப்பு, கார்ப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

காறலுண்டாக்கி

அகட்டுவாயகற்றி

முறைவெப்பகற்றி

தடிப்புண்டாக்கி

வெப்பமுண்டாக்கி

வீக்கங்கரைச்சி

வாதமடக்கி

நச்சரி

குணம்:

" சூலை அருகிசன்னி தொல்லிருமல் ஈளைபித்தம்

மேலைக் குரற்கம்மல் வெங்களநோய்- மூலசுரம்

கவ்வியங்கத் தேறு கனதா வரவிடமுஞ்

செவ்வியங் கொள்ளவிடுந் தேர்."

இதனால் சூலை, சுவையின்மை, முப்பிணி, நாட்பட்ட சுரம், நீடித்த இருமல், ஈளை, வெறி, குரற்கம்மல், தொண்டைநோய், சுரம், எலும்பைப் பற்றி ஏறுகின்ற நஞ்சு ஆகியவைகள் போம்.

Chemical constituents:

Sabinene (15 - 25%), Limonene (5 - 20%), Caryophyllene (10 - 15%), β - pinene (10 - 12%), α - pinene (8 - 12%), acid amides. Pungent substances - Chavicine, Piperine, Pipirine, Piperidine.

17) இந்துப்பு:

Chemical name: Sodii chloridum impura or Sodium chloride impura

Other name: Rock salt

செய்கை:

மலகாரி

அகட்டுவாயகற்றி

சிறுநீர் பெருக்கி

பசித்தீத்துாண்டி

குணம்:

" அட்டகுன்ம மந்தம் அசிர்க்கரஞ்சூர் சீதபித்தந்

துட்டவையம் நாடிப்புண் டோடங்கள்- கெட்டமலக்

கட்டுவிட விந்தையக் காமியநோய் வன்கரப்பான்

விட்டுவிட விந்துப்பை விள்."

" சென்னிக்கண்ணா பற்றூர் செவிகவுள்கண் டம்பகநோய்

சந்நியா சங்காசந் தபகமிரைப்- புன்னிரத்த

மூலஞ் சிலந்திநளி மூடிகநஞ் சூதை வல்லி

சூலஞ் சிதையுமிந்தாற் சொல்."

இந்துப்பினால் எண்வித குன்மம், அலசம், கபபித்தம், கபாதிக்கம், நரம்புக்கிரந்நி, திரிதோஷம், மலபந்தம், விஷம், சுக்கிலம், கப உபதம்பம், கடுவன் ஆகிய நோய்கள்: தலை, விழி, நா, தந்தமூலம், தாது, கன்னம், கண்டம், யோனி இவ்விடத்து நோய்கள் சந்நியாயசம், நேத்திரகாசம், தாகம், சுவாசம், இரத்த மூலம் முதலிய பிணிகள், சிலந்தி, தேள், எலி இவற்றின் விஷங்கள். வாதக் கடுப்பு, சூலை முதலியன நீங்கும்.

Chemical constituents:

Small proportion of iodine.

Uses:

In small doses it is highly carminative, stomachic and digestive. It promotes the appetite and assists digestion and assimilation. In large doses it is cathartic; in still larger doses it is emetic. Rock salt possesses stronger purgative properties than cream of tartar, but like this it is not a satisfactory cathartic given alone.It is given in dyspepsia and other abdominal disorders.

18) கூகைநீறு:

தாவரவியல் பெயர்	:	Maranta arundinaceae
Family	:	Marantaceae
பயன்படும் உறுப்பு	:	கிழங்கு- இதிலிருந்து மா எடுக்கிறார்கள்
சுவை	:	இனிப்பு
தன்மை	:	தட்பம்
பிரிவு	:	இனிப்பு

செய்கை:

குளிர்ச்சியுண்டாக்கி

உள்ளழலாற்றி

உடலுரமாக்கி

குணம்:

"மேனியிடும் வாய்க்கு மிருதுவாம் ஆக்கியுண்ணத்

தானிருமல் வெப்பதிக தாகமிவை- ஏனிருக்கும்

அம்பே றிளங்கிழங்கி தியாவர்க்கு மாமணப்பூங்

கொம்பே! கூ கைக்கிழங்கைக் கூறு."

இதனால் இருமல், சுரம், நீர்வேட்கை நீங்கும். உடற்கு ஊட்டந் தரும்.

Chemical constituents:

Starch, moisture, crude protein, fat, Dextrin, sugars, crude fibre and ash.

Uses:

Starch obtained from rhizome is astringent, sweet, refrigerant, tonic, aphrodisiac, emollient, expectorant, febrifuge and rubefacient. It is useful in dysentery, diarrhoea, dyspepsia, bronchitis, cough and also as a nourishing food for infants, invalids and convalescents.

It is nutrient and demulcent.

19) சுக்கு:

தாவரவியல் பெயர்	:	Zingiber officinale
Family	:	Zingiberaceae
பயன்படும் உறுப்பு	:	கிழங்கு (உலர்ந்தது)
சுவை	:	கார்ப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

வெப்பமுண்டாக்கி

பசித்தீத்தூண்டி

அகட்டுவாயகற்றி

குணம்:

"சூலைமந்தம் நெஞ்செரிப்பு தோடமேப் பம்மழலை

மூலம் இரைப்பிருமல் மூக்குநீர்- வாலகப

தோடமதி சாரந் தொடர்வாத குன்மநீர்த்

தோடம்ஆ மம்போக்குஞ் சுக்கு."

"வாதப் பிணிவயி றூதற் செவிவாய்

வலிதலை வலிகைல வலியிரு விழிநீர்

சீதத் தொடுவரி பேதிப் பலரோ

சிகமலி முகமக முகமிடி கபமார்

சீதச் சுரம்விரி பேதச் சுரநோய்

தெறிபடுமெனமொழி குவர்புவி தனிலே

ஈதுக் குதவுமி தீதுக் குதவா

தெனும்விதி யிலைநவ சுறுகுண முனவே."

சுக்கினால் செரியாமை, மார்பெரிச்சல், புளியேப்பம், வெப்பம், கீழ்வாய்நோய், இரைப்பு, இருமல், கழிச்சல், நீரேற்றம், குன்மம், வயிற்றுப்பிசம், காதுக் குத்தல், முகநோய், தலைநோய், குலைவலி, பாண்டு, வயிற்றுக்குத்தல், ஐயசுரம் போம்.

Chemical constituents:

Volatile oil, Gingerol, Camphene, Phellandrene, Zingiberine, Cineol, Borneol, Oleo - resin - Gingerin, resins, starch, k - oxalate.

Uses:

The raw ginger is acrid, thermogenic, carminative, laxative and digestive. It is useful in anorexia, vitiated conditions of vatam and kapham, dyspepsia, pharyngopathy and inflammations. The dry ginger is acrid, thermogenic, emollient, appetizer, laxative, stomachic, stimulant, rubefacient, anodyne, aphrodisiac, expectorant, anthelmintic and carminative. It is useful in dropsy, otalgia, cephalalgia, asthma, cough, colic, diarrhoea, flatulence, anorexia, vitiated conditions of vata and kapha, dyspepsia, cardiopathy,pharyngopathy, cholera, nausea, vomiting, elephantiasis and inflammations.

Aromatic, carminative, stimulant to the gastrointestinal tract and stomachic also sialogogue and digestive.Externally, a local stimulant and rubefacient.

Antiinflammatory activity:

Recent study documented the ability of a hexane fraction of dried ginger methanolic extract to suppress proinflammatory gene expression in LPSactivated BV2 microglial cells, thus displaying antineuroinflammatory activity. Gingerol and structurally related pungent principles of ginger including shogaol exert inhibitory effects on biosynthesis of prostaglandins and leukotrienes through suppression of prostaglandin synthase or 5lipoxygenase. Several reports have addressed the anti-inflammatory effects of whole ginger extract on the production of NO/iNOS, PGE2/COX-2, TNF-a, IL-1b, and macrophage chemoattractant protein-1 (MCP- 1) in murine macrophages, such as RAW264.7 cells and J774.1 cells, as well as human monocytes, U937 cells. The proposed mechanism behind 6shogaol inhibition of NO evolution in stimulated macrophages involves down regulation of inflammatory iNOS and COX-2 gene expression by inhibition of the activation of NF-jB, because NF-jB plays a critical role in the coordination of the expressions of proinflammatory enzymes. For the human being, the consumption of fresh ginger demonstrated promising results for the decrease of arthritis-induced. These results show that ginger could be used as anti-inflammatory agent and thus as anti-pain.

Immunomodulatory activity:

The beneficial effects of ginger in treating coughs, colds and flu is probably linked to immuneboosting properties of the plant.Few studies have examined the potential immunomodulatory activity of ginger. Non-specific immunity was increased in rainbow trout eating a diet containing 1% of a dried aqueous ginger extract for three weeks.Mice fed a 50% ethanolic ginger extract (25 mg/kg) for seven days had higher haemagglutination antibody titre and plaque-forming cell counts, consistent with improved humoralimmunity. One in vitro study found that ginger suppressed lymphocyte proliferation; this was mediated by decreases in IL-2 and IL- 10 production.

20) சீனிச்சக்கரை:

தாவரவியல் பெயர்	:	Saccharum officinarum
Family	:	Gramineae
பயன்படும் உறுப்பு	:	கருப்பஞ்சாறு, சர்க்கரை, வேர்
சுவை	:	இனிப்பு
தன்மை	:	சீதம்
பிரிவு	:	இனிப்பு

செய்கை:

அழுகலகற்றி

உள்ளழலாற்றி

குணம்:

" சீனிச் சர்க்கரைக்குத் தீராத வன்சுரமுங்

கூனிக்கும் வாதத்தின் கூட்டுறவும்- ஏனிற்கும்

வாந்தி பொடுகிருமி மாறாத விக்கலுமே

போந்திசையை விட்டுப் புரண்டு."

இது வாதசுரம், வாதநோய், வாந்தி, நுண்புழு, விக்கல் இவைகளைப் போக்கும்.

Chemical constituents:

Mucilage, resin, fat, albumen, Guanine in small quantity, Ca - oxalate.

Uses:

It increases the solubility of lime in water. It acts as food and nutrient to adipose tissue hence sugar or sugar forming food is necessary to health, absence of it leads to rapid emaciation. Sugar is antiseptic, demulcent. It produces heat and energy. Root of sugarcane is demulcent, stimulant and diuretic.

The leaf ash is use to treat sore eyes, the stem juice is use to treat sore throat.

21) தேங்காய்ப்பால்:

தாவரவியல் பெயர்	:	Milk of Cocos nucifera
Family	:	Palmae
பயன்படும் உறுப்பு	:	இலை, குருத்து, பூ, பாளை, காய், வேர்கள், ஓடு (சிரட்டை)
சுவை	:	இனிப்பு
தன்மை	:	தட்பம்
பிரிவு	:	இனிப்பு

செய்கை:

குளிர்ச்சியுண்டாக்கி

மலமிளக்கி

உடலுரமாக்கி

சிறுநீர்ப்பெருக்கி

குணம்:

"வாதமாம் பித்தமுறும் வன்கரப்ப னும்படருந்

தாதுமிகவி ருத்தியாந் தாழ்குழலே- போதநல்ல

அன்ன மிறங்கு மதியுருசியுண்டாகுந்

தென்னங்காய்ப் பாலாற் றெளி."

சுவை மிகுந்த, இப்பாலைச் சோற்றில் கலந்துண்ணின் விருப்பமுண்டாம், உடல் வன்மை பெறும். ஆயினும் வளிதீ குற்றங்களையும் கரப்பான் நோயையும் உண்டாக்கும்.

Chemical constituents:

Sugar - Mannitol, gum, albumen, tartaric acid and mineral water. Saccharose, Myonostol, Scyllo - inositol, Sorbitol, Diphenylurea, aliphatic alcohols,ketones,Leucoanthocyanins, 2 - propyleneglycol, Glycerol, Sucrose, Glucosan, Ferricopnin, Cocositol, Mono and sesquiterpenes, Campesterol, Cycloartenol, Squalene, Stigmasterol.

Uses:

Coconut milk is refrigerant, nutrient, aperients, diuretic and anthelmintic. Oil from the shell is rubefacient and antiseptic and used externally. Root of the coconut is diuretic. Atarry oil is prepared from the shell of the nut which is used only externally in the treatment of ringworm. Milk or water of the green fruit is a cooling refrigerant drink, useful in urinary disorders. Root of the coconut is used in uterine diseases.

Juice from the midrib at the lower base of the leaf issued in treating maternal postpartum illness. Coconut milk is used to treat fish poisoning. The oil is used as an emetic and as a purgative. The juice from a green coconut is given to women who have difficult pregnancies. Juice from the fruit is taken to treat kidney problems. The coconut is said to have vermicide properties. Diarrhoea and dysentery are treated with parts of this plant.

22) மஞ்சள்:

தாவரவியல் பெயர்	:	Curcuma longa
Family	:	Scitaminaceae
பயன்படும் உறுப்பு	:	கிழங்கு
சுவை	:	கார்ப்பு, கைப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

மணமூட்டி

அகட்டுவாயகற்றி

வெப்பமுண்டாக்கி

ஈரல்தேற்றி

குணம்:

"பொன்னிறமாம் மேனி புலானாற்ற மும்போகும்

மன்னு புருட வசியமாம்- பின்னியெழும்

வாந்திபித்த தோடமையம் வாதம்போந் தீபனமாங்

கூர்ந்தமஞ்ச ளின்கிழங்குக்கு."

"தலைவலிநீ ரேற்றஞ் சளையாத மேகம்

உலைவுதரு பீனசத்தி னுாடே- வலிசுரப்பு

விஞ்சு கடிவிடமும் வீறுவிர ணங்களும்போம்

மஞ்சள் கிழங்குக்கு மால்."

உடலிற் பூசிக்குளிக்க உடலுக்குப் பொன்னிறம் தரும். புலால் நாற்றத்தை நீங்கும். ஆண்கள் மனத்தைக் கவரச்செய்யும் பசியையுமுண்டாக்கும். இதனால் வாந்தி, வளி, தீ, ஐயக்குற்றம், தலைவலி, நீரேற்றம், வெள்ளை, மூக்குநீர்பாய்தல், ஐவகைவலி, வீக்கம், வண்டுக்கடி, பெரும்புண் இவைபோம்.

Chemical constituents:

Alkaloid - Curcumin, Turmeric oil (or) Turmerol, Caproic acid, Valeric acid, d - sabinene, d - a - phellandrene, Cineol, d - borneol, Sesquiterpine, Zingiberene, Turmerone, dehydroturmerone, y & a - alanto lactone, Curcumene.

Uses:

Juice of the fresh rhizome is applied to recent wounds, bruises and leech bites. Internally it is used as an anthelmintic. Root is usefully administered in intermittent fevers. It is also given internally with cow's urine in prurigo and eczema. Mixed with gingelly oil it is applied to the body to prevent skin eruptions. The fumes are also used to relieve hysterical fits. Milk boiled with turmeric rhizome added to it and then sweetened withnsugar is a popular remedy for cold. Internally turmeric is given in infections of the liver and in jaundice.

The rhizome is well known for its anti - gastric - ulcer, anti - inflammatory and cholagogic properties. It is used in the treatment of gastric and duodenal ulcer, hepatitis, jaundice, menstrual disorders, post partum or menstrual haematometra, contusions, rheumatism, pain in the extremities, boils and impetigo.

23) கருஞ்சீரகம்:

தாவரவியல் பெயர்	:	Nigella sativa
Family	:	Ranunculaceae
பயன்படும் உறுப்பு	:	விதை
சுவை	:	கைப்பு
தன்மை	:	வெப்பம்
பிரிவு	:	கார்ப்பு

செய்கை:

அகட்டுவாயகற்றி

சிறுநீர்ப்பெருக்கி

ருதுவுண்டாக்கி

பாற்பெருக்கி

புழுக்கொல்லி

பசித்தீத்துாண்டி

துாக்குணிப்புழுக்கொல்லி

வறட்சியகற்றி

குணம்:

" கருஞ்சீ ரகத்தான் கரப்பனொடு புண்ணும்

வருஞ்சிராய்ப் பீநசமு மாற்றும்- அருந்தினால்

காய்ச்சல் தலைவலியுங் கண்வலியும் போமுலகில்

வாய்ச்ச மருந்தெனவே வை."

மண்டைக் கரப்பான், புண், உட்சூடு தலைநோய், கண்ணோய் இவைகளும் சிரங்கு, வயிற்றுப் பொருமல், குன்மம், மார்புவலி, இருமல், வாந்தி, ஓக்காளம், வீக்கம், காமாலை ஆகியவைகளும் நீங்கும்.

Chemical constituents:

Volatile oil, albumin, sugar, mucilage, organic acids - Metarbin, toxic glucoside - Melanthin, Helleborin, Arabic acid, Carvone, Carvene, Cymene, Myristic acid, Palmitic acid, Stearic acid, Oleic acid, Linoleic acid, Trilinolein acid, Oleodilinolein acid, Dioleolinolein acid, Palmito - oleo - linolein acid, Stearo - oleolinolein acid.

Uses:

Seeds given with butter milk to cure obstinate hiccup, corrective of purgatives and are also useful indigestion, loss of appetite, fever, diarrhea, dropsy puerperal diseases etc. With sweet oil the decotion forms a useful application in the skin diseases. Brayed in water its application removes swellings from hands and feet. Seeds fried, bruised tied in muslin bag and smelt relieve cold and catarrh of the nose by constant inhalation.

The seeds are acrid, bitter, thermogenic aromatic, carminative, diuretic, emmenagogue, anodyne, antibacterial, anti - inflammatory, deodorant, appetizing, digestive, anthelmintic, constipating, sudorific, febrifuge, stimulant, galactagogue and expectorant.

24) கல்லுப்பு:

Chemical name: Sodii chloridum or Sodium chloride

Other name: Common salt, Table salt

செய்கை:

அழுகலகற்றி

முறைவெப்பகற்றி

புழுக்கொல்லி

வீக்கமுருக்கி

குணம்:

" ஐயமறுஞ் சூலை யரோசிபித்தஞ் சத்தியொடு

வெய்யபிணி யட்டகுன்மம் விட்டேகும்- பெய்வளையே

வாதமதி தாகம் மலக்கட்டும் போமுலகிற்

கோதறுகல் லுப்பைக் கொடு."

கல்லுப்பினால் கபம், குத்தல், அருசி, பித்தம், வாந்தி, உஷ்ணவாயு, எண்விதகுன்மம், வாதநோய், நாவறட்சி, மலபந்தம் இவை ஏகும்.

Uses:

Antiseptic, antiperiodic, anthelmintic and deobstruent. It keeps the globulin of the blood in solution. It increases the secretion of the gastric juice . Internally in small doses it increases the secretion of the salivary and gastric glands, sharpens appetite and

promotes digestion. It excites thirst and thus assists absorption of liquid food. In a diluted form it enters the blood and dissolves albumins and globulins. It is also a rubefacient. It acts as an emetic in large doses and in still larger doses it is a powerful purgative.

Internal Medicine - Nilavaagai chooranam

Ingredients **Powder form**

Nilavaagai

Milagu

Kadukkai

Thandrikkai

Seeragam

Vaaluvai

Sirunaagapoo

Elam

Illavangapattai

Kadugurogini

Sivadhai

Thalisapathiri

Jadhikkai

Kirambu

Thippili

Cheviyam

Indhuppu

Koogaineer

Chukku

Purification methods

Nilavaagai - Pittaviyal Technique

Sivathai - Pittaviyal Technique

Milagu

Kadugurogini

Koogaineer

Chooranam Preparation - Vasthirakayam

External Medicine - Thengaai thylam

Thengaai pal

Manjal

Karunjeeragam

Kalluppu

Oil preparation

Nilavaagai chooranam (Prepared Medicine)

Thengaai thylam (Prepared Medicine)

Leech Procedure


0


278


5.6


DISSERTATION - (16)
Mrs. I: Gradfia, 30/F
K96927, A Karappan
No. of leeches - (4)
DOE: 6.3.2019
Box No - (1)

Patients with Leech therapy

Patient 1

Before treatment

During treatment

After treatment

Patient 2

Before treatment

During Treatment

After treatment

Patients without Leech therapy

Patient 1

Before treatment

After treatment

Patient 2

Before treatment

After treatment

NATIONAL INSTITUTE OF SIDDHA
राष्ट्रीय सिद्ध संसथान -
Ministry of AYUSH - आयुष मंत्रालय
GOVERNMENT OF INDIA-भारत सरकार
TAMBARAM SANATORIUM, CHENNAI -600 047 -ताम्बरम सनटोरियम चेन्नई -600 047
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ईमेल: nischennaisiddha@yahoo.co.in वेब :www.nischennai.org

F.No.NIS/6-20/Res/IEC/17-18 Date: 28-12-2017

CERTIFICATE

Address of Ethics Committee: National Institute of Siddha, Tambaram Sanatorium, Chennai-600047, Tamil Nadu, India	
Principal Investigator: Dr.V.Asha Jeba Keerthana, M.D(S) – II year, Department of Sirappu Maruthuvam - Dissertation –	
Protocol title: A Comparative Clinical trial of Siddha formulation of ***Nilavaagai Chooranam*** *internally* and ***Thengaai Thylam*** *externally* in the treatment of ***Karappan*** (Eczema) with and without Leech therapy.	
Documents filed	1) Protocol, 2) Data Collection forms 3) Patient Information Sheet 4) Consent form 5) SAE(Pharmacovigilance)
Clinical trial Protocol (others – Specify)	**Yes**
Informed consent documents	**Yes**
Any other documents	-
Date of IEC approval & its number	**NIS/13-IEC/2017-1-09/ 22-11-2017**

We approve the trial to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study, Review periodically, any SAE occurring in the course of the study, any changes in the protocol and submission of final report

Chairman

Member Secretary

NATIONAL INSTITUTE OF SIDDHA CHENNAI 600 047

NATIONAL INSTITUTE OF SIDDHA, CHENNAI – 600047

BOTANICAL CERTIFICATE

Certified that the following plant drugs used in the Siddha formulation **"Nilavaagai chooranam"** (Internal) and **"Thengaai thylam"** (External) taken up for Post Graduation Dissertation studies by **Dr.V.Asha Jeba Keerthana** M.D.(S), II year, Department of Sirappu Maruthuvam, 2018, are identified through Visual inspection, Experience, Education & Training, Organoleptic characters, Morphology and Taxonomical methods as

Cassia senna Linn. (Caesalpiniaceae), Leaf
Piper nigrum Linn. (Piperaceae), Fruit
Terminalia chebula Retz. (Combretaceae), Fruit
Terminalia belerica Roxb. (Combretaceae), Fruit
Cuminum cyminum Linn. (Apiaceae), Fruit
Celastrus paniculatus Willd. (Celastraceae), Seed
Mesua ferrea Linn.(Clusiaceae) Flower
Elettaria cardamomum Maton (Zingiberaceae), Seed
Cinnamomum verum Presl. (Lauraceae), Bark
Picrorhiza scrophulariiflora Royle ex Benth. (Scropulariaceae), Root
Operculina turpethum (Linn.) Silova Manso (Convolvulaceae), Root
Taxus baccata Linn. (Taxaceae), Leaf
Myristica fragrans Houtt. (Myristicaceae), Nut
Syzygium aromaticum (Linn.) Merr. & L.M. Perry (Myrtaceae), Flower bud
Piper longum Linn. (Piperaceae), Fruit
Piper nigrum Linn. (Piperaceae), Root
Maranta aurundinacea Linn. (Marantaceae), Rhizome
Zingiber officinale Rosc. (Zingiberaceae), Dried rhizome
Cocos nucifera Linn. (Arecaceae), Kernel juice
Curcuma longa Linn. (Zingiberaceae), Finger rhizome
Nigella sativa Linn. (Ranunculaceae), Seed

MEDICINAL BOTANY * CHENNAI 600 047 * National Institute of Siddha *

Certificate No: NISMB3372018
Date: 08-06-2018

Authorized Signatory
Dr. D. ARAVIND, M.D.(s),M.Sc.,
Assistant Professor
Department of Medicinal Botany
National Institute of Siddha
Chennai - 600 047, INDIA

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F.No:NIS/Gunapadam/Au/2017/13

25.04.18

AUTHENTIFICATION CERTIFICATE

Certified that the samples submitted for identification by **Dr. V. Asha Jeba Keerthana**, II year PG scholar, Dept. of Sirappu Maruthuvam, National Institute of Siddha, Chennai - 47, are identified as **Indhuppu-Sodii chloridum impura, Kalluppu- Sodii chloridum** on the basis of macroscopic character.

This certificate is issued for the purpose of preparing her dissertation medicine in Gunapadam laboratory, NIS.

Dr. S. Visweswaran, M.D (s)
Head of Department
Department of Gunapadam
National Institute of Siddha
Tambaram Sanatorium, Chennai-47.

CERTIFICATE

Ministry of AYUSH

NATIONAL INSTITUTE OF SIDDHA

Ministry of AYUSH, Government of India

Tambaram Sanatorium, Chennai - 600 047.

WORKSHOP ON
RESEARCH METHODOLOGY & BIOSTATISTICS

This is to certify that

Dr. V. ASHA JEBA KEERTHANA

has participated in the above Workshop held from 16.04.2018 to 20.04.2018 conducted by the Dept. of Noi Naadal, at National Institute of Siddha, Tambaram Sanatorium, Chennai-600 047.

Dr. G.J. Christian
Coordinator
HoD, Dept. of Noi Naadal,
National Institute of Siddha

Prof.Dr.V.Banumathi
Director,
National Institute of Siddha
Chennai - 600 047.

Clinical Trial Details (PDF Generation Date :- Thu, 17 May 2018 12:20:55 GMT)

CTRI Number	CTRI/2018/05/013794 [Registered on: 09/05/2018] - **Trial Registered Prospectively**
Last Modified On	07/05/2018
Post Graduate Thesis	Yes
Type of Trial	Interventional
Type of Study	Siddha
Study Design	Single Arm Trial
Public Title of Study	Clinical trial of Karappan in adults.
Scientific Title of Study	A Comparative Clinical trial of Siddha formulation of Nilavaagai Chooranam internally and Thengaai Thylam externally in the treatment of Karappan (Eczema) with and without Leech therapy.

Secondary IDs if Any

Secondary ID	Identifier
NIL	NIL

Details of Principal Investigator or overall Trial Coordinator (multi-center study)

Details of Principal Investigator	
Name	Dr V Asha Jeba Keerthana
Designation	PG scholar
Affiliation	National Institute Of Siddha,Tambaram Sanatorium,chennai
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Source of Monetary or Material Support

Source of Monetary or Material Support
> self

Primary Sponsor

Primary Sponsor Details	
Name	self
Address	Department of Sirappu Maruthuvam, Room no-3, Ayothidass Pandithar Hospital, National Institute of Siddha, Tambaram Sanatorium, Chennai.
Type of Sponsor	Other []

Details of Secondary Sponsor

Name	Address
NIL	NIL

Countries of Recruitment

List of Countries
India

Sites of Study

Name of Principal Investigator	Name of Site	Site Address	Phone/Fax/Email
Dr V Asha Jeba Keerthana	National Institute Of Siddha	Department of Sirappu Maruthuvam, Room no-3, National Institute of Siddha, Tambaram Sanatorium, Chennai. Kancheepuram TAMIL NADU	9442830149 v.ashajebakeerthana@gmail.com

Details of Ethics Committee

Name of Committee	Approval Status	Date of Approval	Is Independent Ethics Committee?
Institutional ethics committee	Approved	22/11/2017	No

Regulatory Clearance Status from DCGI

Status	Date
Not Applicable	No Date Specified

Health Condition / Problems Studied

Health Type	Condition
Patients	Patients with Clinical features like Itching, Oozing, Erythema, Papules, Vesicles, Scaling and Hyperpigmentation

Intervention / Comparator Agent

Type	Name	Details
Intervention	NILAVAAGAI CHOORANAM (internal) and THENGAAI THYLAM (external)	NILAVAAGAI CHOORANAM is a herbomineral formulation in a dosage of 1g (bd) for 48 days. THENGAAI THYLAM externally in the affected area.
Comparator Agent	NOT APPLICABLE	NOT APPLICABLE

Inclusion Criteria

Inclusion Criteria	
Age From	20.00 Year(s)
Age To	65.00 Year(s)
Gender	Both
Details	1.Clinical features like Itching, Oozing, Erythema, Papules, Vesicles, Scaling and Hyperpigmentation. 2.Patients who are willing to undergo Leech application.

Exclusion Criteria

Exclusion Criteria

Details	1.Hypertension and other Cardiac ailments 2.Narcotics 3.Pregnancy and Lactation 4.Evidence of any skin disease other than eczema 5.Hemophilia 6.Thrombocytopenia 7.Hepatitis B 8.HIV 9.Renal Diseases 10.Severe anaemia 11.Immuno deficiency diseases

Method of Generating Random Sequence	Not Applicable
Method of Concealment	Not Applicable
Blinding/Masking	Not Applicable

Primary Outcome

Outcome	Timepoints
Efficacy of the trial drug measured by EASI score	1-48 days

Secondary Outcome

Outcome	Timepoints
To study the Siddha basic principles towards effect of medicine and therapy.	1-48 days

Target Sample Size	**Total Sample Size=**40 **Sample Size from India=**40
Phase of Trial	Phase 2
Date of First Enrollment (India)	09/11/2018
Date of First Enrollment (Global)	No Date Specified
Estimated Duration of Trial	**Years=**2 **Months=**0 **Days=**0
Recruitment Status of Trial (Global)	Not Applicable
Recruitment Status of Trial (India)	Not Yet Recruiting
Publication Details	NOT YET
Brief Summary	In Aathma Ratchamirdhamenum Vaidhya Saara Sangirakam, a Siddha formulary sastric text, there is a preparation named "Nilavaagaichooranam" (Internal Medicine) and in BhogarAruliyaVaithiyaSaram-700 text "Thengaaithylam"(External Medicine) is indicated for Karappan. The preparation of the trial drugs are simple and are cost effective.

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Research Article

THERAPEUTIC EFFECTIVENESS OF A SIDDHA FORMULATION *NILAVAAGAI CHOORANAM*: A REVIEW

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ABSTRACT

Siddha system of medicine is one of the ancient systems of medicine practiced among Tamil speaking community particularly in southern parts of India. The medicine in this system prepared from raw drugs which is obtained from herbals, mineral, metals and animal products. "*Nilavaagaichooranam*" is one of the Sastric Siddha herbo-mineral preparation with ingredients of 18 herbal and one mineral ingredient. It is used to treat the skin disorders particularly for "*Karappan* (Eczema)". This review is aimed to bring out scientific evidence for the therapeutic usuage of "*Nilavaagaichooranam*" in skin disorders particularly in *Karappan* (Eczema) and focused on the pharmacological activity responsible for the curative nature of the drug in *Karappan* (Eczema). Most of the raw drugs used for the preparation of *Nilavaagai chooranam* have antihistamine activity, anti-inflammatory activity, immunomodulatory activity hence justifying its usage in *Karappan* (Eczema).

KEYWORDS: Siddha Medicine, *Nilavaagaichooranam, Karappan*, Pharmacological activity.

INTRODUCTION

Siddha system of medicine is the primary system of all system of medicine and is originated and practiced in southern India particularly in Tamilnadu. It is also called Tamil Maruthuvam because it evolved along with Tamilan's culture. Siddha medicines are known for its efficacy and safety. The reason for popularity of the Siddha system is attributed to its effective with minimal side effect. Siddhars, the founder of Siddha system possessed *Yoga siddhi* powers (supernatural powers). They have left their imprints in many disciplines like medicine, alchemy, philosophy, *Yogam* and *Varmam.*

"*Nilavaagaichooranam*" is classical Siddha compound drug which is mentioned in Siddha text book of *Aathma Ratchamirdhamenum Vaidhya Saara Sangirakam*. This drug used for skin diseases particularly for "*Karappan* (Eczema)". The drug review of "*Nilavaagaichooranam*", a herbo mineral drug gives evidence for its therapeutic action mentioned in literature. The major ingredients of this drug are herbal. This review focused on the pharmacological activities of each ingredient which supports the traditional claim and the literature search is confined to that area. The search was made from the textbooks in the library of National Institute of Siddha, journals, internet, databases etc.

Standard operating procedure for preparation of *Nilavaagaichooranam*

Purification of raw drugs

All the raw drugs are purified as per the methods mentioned in Siddha literature.

Preparation of drug "*Nilavaagaichooranam*"

The raw drugs are dried and powdered separately, then mixed well together and then added with equal amount of white sugar and preserved in a tightly closed container. The drugs are mentioned in table-1.

Table1: Method of preparation of "*Nilavaagai chooranam*"[1]

S.No.	Tamil name	Botanical name/ Chemical name	Parts used	Quantity
1.	*Nilavaagai*	*Cassia senna*	Whole plant	350 gms
2.	*Milagu*	*Piper nigrum*	Seed	8.75 gms

3.	*Kadukkai*	*Terminalia chebula*	Fruit	8.75 gms
4.	*Thandrikkai*	*Terminalia bellirica*	Fruit	8.75 gms
5.	*Seeragam*	*Cuminum cyminum*	Seed	8.75 gms
6.	*Valuluvai*	*Celastrus paniculatus*	Seed	8.75 gms
7.	*Sirunagapoo*	*Mesua ferrae*	Flower bud	8.75 gms
8.	*Ellam*	*Elettaria cardamomum*	Seeds	8.75 gms
9.	*Illavangapattai*	*Cinnamomum verum*	Bark	8.75 gms
10.	*Kadughurohini*	*Picrorhiza kurroa*	Root	8.75 gms
11.	*Sivathai*	*Operculina turpethum*	Root	8.75 gms
12.	*Thalisapathiri*	*Taxus baccata*	Leaves	8.75 gms
13.	*Jathikkai*	*Myristica fragrans*	Fruit	8.75 gms
14.	*Kirambu*	*Syzygium aromaticum*	Flower	8.75 gms
15.	*Thippili*	*Piper longum*	Fruit	8.75 gms
16.	*Seviyam*	Root of *Piper nigrum*	Root	8.75 gms
17.	*Indhuppu*	Sodiichloridum impure or Sodium chloride impura	-	8.75 gms
18.	*Koogaineeru*	*Maranta arundinacea*	Tuber	8.75 gms
19.	*Chukku*	*Zingiber officinale*	Dried rhizome	8.75 gms

Information on mineral ingredient (*Indu-uppu*) as per Siddha text *Gunapadam Thathu Jeeva Vaguppu: Indu-uppu*

Name in other language: Sanskrit: Saindhava, English: Rock salt, Sea salt, Bay salt, Hindi: Sendhalon, Sedhalon, Tamil: *Indu-uppu*. It is found in nature in extensive beds mostly associated with clay and calcium sulphate. *Indu-uppu* is a natural substance collected from Sindh and Northwestern parts of Punjab.[2]

Indu-uppu is found in small white crystalline grains or transparent cubes. It is brownish white externally and white internally. It has a pure saline taste and burns with a yellow flame. In small doses it is highly carminative, stomachic and digestive. It promotes the appetite and assists digestion and assimilation. In large doses it is cathartic; in still larger doses it is emetic. Rock salt possesses stronger purgative properties than cream of tartar, but like this it is not a satisfactory cathartic given alone. It is given in dyspepsia and other abdominal disorders.[3]

Table 2: Information on herbal ingredients as per the Siddha text *GunapadamMooligai Vaguppu*[4]

S.No.	Botanical name	Vernacular name				Parts used
		Tamil	English	Hindi	Sanskirt	
1.	*Cassia senna*	*Nilavaagai*	Tinnevelly senna	Sunnamakai	-	Leaves
2.	*Piper nigrum*	*Milagu*	Black pepper	Kali-mirch	*Maricha*	Seed
3.	*Terminalia chebula*	*Kadukkai*	Ink nut, Chebulic myrobalan	Pile Hara	*Haritaki*	Fruit
4.	*Terminalia bellirica*	*Thandrikkai*	Beleric myrobalan	Bhairah	*Vebeethaki*	Fruit
5.	*Cuminum cyminum*	*Seeragam*	Cumin seeds	Zira	*Jirakams*	Seed
6.	*Celastrus paniculatus*	*Valuluvai*	Climbing staff plant	Mal-kangni	*Jyotishmati*	Seed
7.	*Mesua ferrae*	*Sirunagapoo*	Ceylon Iorn Wood	Nag-kesar	*Naga-kesara*	Flower bud
8.	*Elettaria cardamomum*	*Ellam*	Cardamom seeds	Elachi	*Ela*	Seeds

9.	*Cinnamomum verum*	*Illavangapattai*	Bark of Cinnamon	Dar-Chini	*Twak*	Bark
10.	*Picrorhiza kurroa*	*Kadughurohini*	Picrorhiza	Katuka, Kutki	*Katurohini, Katuka*	Root
11.	*Operculina turpethum*	*Sivathai*	Turpeth root	Nasvath	*Trivrith, Tributa*	Root
12.	*Taxus baccata*	*Thalisapathiri*	East Himala fir yanssilva	Talispatri	*Talisapathra*	Leaves
13.	*Myristica fragrans*	*Jathikkai*	Nut Meg	Jae-phal	*Jatphalam*	Fruit
14.	*Syzygium aromaticum*	*Kirambu*	Clove tree	Long	*Lavangam*	Flower bud
15.	*Piper longum*	*Thippili*	Long pepper	-	*Pippali*	Fruit
16.	Root of *Piper nigrum*	*Seviyam*				Root
17.	*Maranta arundinacea*	*Koogaineeru*	East Indian Arrow root	Tikhar	-	Tuber
18.	*Zingiber officinale*	*Chukku*	Dried Ginger	Sonth	*Nagaram*	Dried rhizome

Pharmacological activities of ingredients of *Nilavaagaichooranam*

1) *Nilavaagai* (*Cassia senna*)

Laxative and purgative, used in constipation, loss of appetite, hepatomegaly, splenomegaly, indigestion, malaria, skin diseases, jaundice and anaemia.[5] Purgative. Externally powdered leaves mixed with vinegar and made into a plaster are applied locally in certain skin diseases.[6]

2) *Milagu* (*Piper nigrum*)

Antiasthmatic activity

Most of the herbal practioners and old people believed that addition of powdered peppercorn to green tea reduced asthma.[7-8] Kim et al. reported that oral administration of piperine in different proportion to mice suppressed and reduced the infiltration of eosinophil, hyper responsiveness and inflammation due the suppression of the production of histamine, interleukin- 5, immunoglobulin E and interleukin-4.[9]

Anti-inflammatory activity

The in vitro anti-inflammatory activities were evaluated on interleukin 1β stimulated fibroblast like synoviocytes obtained from rheumatoid arthritis, while anti-arthritic including analgesic activities was evaluated on carrageen an induced acute paw model of pain and arthritis in rats. Te prostaglandin E2, cyclooxygenase 2, interleukin 6 and matrix metallo-proteinase levels were evaluated by ELISA and RT-PCR methods of analysis. Piperine treated groups were found to reduce the synthesis of prostaglandin E2in a dose dependant comportment at the concentrations of 10-100 µg/mL. It significantly inhibited the synthesis of prostaglandin E2 even at 10 µg/mL.Te expression of interleukin 6 and matrix metallo-proteinase 13 were also inhibited.[10]

Immuno-modulatory activity

In vitro immunomodulatory activity of piperine was evaluated to enhance the efficacy of rifampicin in a murine model of Mycobacterium tuberculosis infection. Mouse splenocytes were used to evaluate in-vitro immunomodulation of piperine for cytokine production, macrophage activation and lymphocyte proliferation. Piperine treated mouse splenocytes demonstrated an increase in the secretion of T-1 cytokines (IFN-γ and IL-2), increased macrophage activation and proliferation of T and B cell. Protective efficacy of piperine and rifampicin (1 mg/kg) combination against Mycobacterium tuberculosis was reported due to immuno-modulatory activity.[11]

3) *Kaddukkai* (*Terminalia chebula*)

Immuno-modulatory activity

Aqueous extract of *T. chebula* produced an increase in humoral antibody titre and delayed type hypersensitivity in mice.[12] *T. chebula* found effective against the progression of advanced glycation end products-induced endothelia cell dysfunction.[13] Crude extract of *T. chebula* stimulated cell mediated immune response in experimental amoebic liver abscess in golden hamsters.[14] The formulation showed highest cure rate of 73% at 800 mg/kg body weight in hepatic amoebiasis. In immune-modulation studies, humoral immunity was improved where T-

cell counts remained unaffected in the animals, but cell-mediated immune response was stimulated.[15]

Anti-inflammatory activity

Aqueous extract of dried fruit of *T. chebula* showed anti-inflammatory activity by inhibiting inducible nitric oxide synthesis.[16] Chebulagic acid extracted from tender fruit of *T. Chebula* significantly suppressed the onset and progression of collagen-induced arthritis in mice. *T. chebula* in a polyherbal formulation (Aller-7) exhibited anti-inflammatory effect against arthritis in rats.[17]

Immunomodulatory activity

Ethanolic extracts- Study confirms the immunomodulatory activity of ripe *T. Chebula* fruits as evidenced By increase in the concentration of antioxidant enzymes, GSH, T and B cells, the proliferation of which play important roles in immunity. This phenomenon also enhances the concentration of melatonin in Pineal gland as well as the levels of cytokines.[18] Gallic acid and chebulagic acid were isolated from the extract of a herbal medicine, kasha (*myrobalans*: the fruit of *Terminalia chebula*) as active principles that blocked the cytotoxic t lymphocyte (ctl)-mediated cytotoxicity.[19]

Anti-allergic activity

T. chebula, ingredient of a polyherbal formulation (Aller-7), showed potent in vitro anti-allergic activity.[20] Hydro-ethanol extract of *T. chebula* exhibit anti-histamine and anti-spasmodic in guinea pig ileum.[21] Oral administration of an aqueous extract of fruit significantly suppressed histamine release from rat peritoneal mast cells 117 and also significantly increased production of tumour necrosis factor (TNF) by anti-dinitrophenyl IgE.[22]

4) *Thandrikkai* (*Terminalia bellerica*)

Immune response in vitro

In vitro Phagocytic activity and lymphocyte proliferation assay were carried out in methanolic extract of on the mouse immune system (Aurasorn Saraphanchoti witthaya et al., 2008). In both assay, stimulation of macrophage phagocytosis and maximal activation of phytohemagglutinin were observed. Finally, the authors concluded that the methanolic extract of *T. belerica* affected the mouse immune system, specifically both the cellular and humoral immune response in vitro.[23]

5) *Seeragam* (*Cuminum cyminum*)

Immunomodulatory

The oral treatment of cumin stimulated the T cells (CD4 and CD8) T1 cytokines' expression in normal and cyclosporine-An induced immune suppressed animal. Cumin also depleted T lymphocytes, decreased the elevated corticosterone levels and size of adrenal glands and increased the weight of thymus and spleen in stress induced immune suppressed mice.[24]

Immunological effect

The health modulating effects and immunomodulatory properties of *Cuminum cyminum* were evaluated using flowcytometry and ELISA in normal and immune-suppressed animals. *Cuminum cyminum* stimulated the T cells and Th1 cytokines expression in normal animals. Swiss albino mice subjected to Cyclosporine-A induced immune-suppression were dosed orally with *Cuminum cyminum* (25, 50, 100 and 200 mg/kg) on consecutive days. The results showed that administration significantly increased T cells (CD4 and CD8) count and Th1 predominant immune response in a dose dependent manner, suggesting immunomodulatory activity through modulation of T lymphocytes expression. In restraint stress induced immune-suppressed animals, *Cuminum cyminum* countered the depleted T lymphocytes, decreased the elevated corticosterone levels and size of adrenal glands and increased the weight of thymus and spleen.[25]

6) *Valluluvai* (*Celastrus paniculatus*)

Analgesic and Anti-inflammatory

A methanolic extract of the flowers of C. paniculatus exhibits analgesic and antiinflammatory activities in the hot water tail immersion test in mice and carrageenan induced pedal edema in rats.[26]

7) *Sirunagapoo* (*Mesua ferrae*)

Immunomodulatory activity

M. ferrae flower buds in a poly herbal formulation, ACII was studied for immune modulation effect on radiation induced immune suppression. It is observed high increase in circulating antibody specially in animals treated with ACC II further there is no change in the weight of body. WBC count increased. Whereas no change in hemoglobin was seen in normal or drug treated animals. There is also no change in lymphocyte, neutrophil ratio. Bone marrow get improved along with this improvement is seen in α-esterase cells too, thymus weight increases.[27] Although ACII effect is seen in normal[28] and cyclophosphamide treated animals.[29] By using various specific and nonspecific immune response in animals for seeing Immuno modulatory activity of *M.ferrae* seed oil was studied by isolating mesuol from *M.ferrae* seed. It is observed that in humoral response model. Mesuol cause increase in dose dependent in antibody (9th and 6th day) as well as induced. Immuno suppression which is seen in sheep RBC (7th and 14th day) of experiment. Where as in cellular immune response model, an increase in Paw volume was observed on 23rd day in rat treated with SRBC (Sheep RBC).

Further mesuol help in restoring hematological property in cyclophosphamide induced myelo-suppression model. So after discussing all this the report indicate clearly the modulatory activity of mesuol.[30]

Anti-inflammatory activity

Using albino rats Mesuaxanthone A and Mesuaxanthone B (MXA and MXB) from *M. Ferrae* were observed by carrageenan induced hind Paw oedema and granuloma pouch tests. MXA shows 37% MAB showed 49% reduction when compound with normal group. But it is known than xanthones show signifcant anti-inflammatory property in normal and adrenalectomised rats. So xanthones used here for its important inflammatory activity.[31]

8) *Ellam (Elettaria cardamomum)*

The seeds are aromatic, acrid, sweet, cooling, stimulant, carminative, digestive, stomachic, diuretic, cardiotonic, abortifacient, alexeteric, expectorant and tonic and are useful in asthma, bronchitis, haemorrhoids, strangury renal and vesical calculi, halitosis, cardiac disorders, anorexia, dyspepsia, gastropathy, hyperdipsia, burning sensation, debility and vitiated conditions of vata.[5] Powerful aromatic, stimulant, carminative, stomachic and diuretic. These properties are due to the essential oil contained in the seeds.[6]

9) *Illavangapattai* (*Cinnamomum verum*)

Anti-inflammatory activity: In vitro

Various essential oils, including cinnamon bark oil, used in the treatment of rheumatism and inflammation as well as some of their main constituents and phenolic compounds known for their irritant and pungent properties were screened for activity as inhibitors of prostaglandin biosynthesis. A combination of a prostaglandin-synthesizing cyclo-oxygenase system from sheep seminal vesicles and an HPLC separation technique for the metabolites of arachidonic acid was used as test system. Cinnamon bark oil showed inhibitory cyclo-oxygenase activity. The active compound is probably eugenol (Wagner et al., 1986).

Anti-inflammatory activity: In vivo

Dry ethanolic extract of *Cinnamomum zeylanicum* administered orally to rats at 400 mg/kg body weight showed an anti-inflammatory effect against chronic inflammation induced by cotton pellet granuloma indicating an anti-proliferative effect (Atta & Alkofahi, 1998).

Eugenol (*Cinnamomum verum*)

Anti-inflammatory

The study concluded beneficial effect of eugenol administrated at 5 and 10 mg/kg per B.W. against lipopolysaccharide (LPS) induced acute lung injured (ALI) mice, for this purpose 0.5 mg/kg LPS was intratracheally infused. Examination of lung tissues and bronchoalveolar lavage fluid (BALF) suggested anti-inflammatory effect due to reduced production of pro-inflammatory cytokines.[32]

Additionally, in vitro studies revealed that clove oil polyphenol inhibits nuclear factor-kB (NF-kB) activation in lipopolysaccharides initiated macrophages induced by inactivated cyclooxygenase activity (COX-2) and tumor necrosis factor (TNFa). Cyclooxygenase activity is prompted by LPS, cytokines and growth factors.[31]During pulmonary inflammation in mouse, elevated TNF-a and neutrophils were significantly reduced by eugenol at a dose of 160 mg /kg per body weight. It also protected against chemically induced dysfunction of macrophages and balanced the pro-inflammatory mediators.[33]

Immunomodulatory activity

Mahapatra et al. investigated the in vitro protective effect of eugenol (1–20 µg/mL) against nicotine-induced (10 mM nicotine) cellular damage in mice peritoneal macrophages by analysing the radical generation, lipid, protein, DNA damage and endogenous anti-oxidant status. The results indicated that eugenol could be used as modulator of nicotine-induced cellular damage and immunomodulatory drug against nicotine toxicity. [34]

10) *Kadughurohini* (*Picrorhiza kurroa*)

Anti-asthmatic activity

P.kurroa has been studied extensively for its anti-asthmatic activity. The crude extract of *P.kurroa* roots reduced the frequency and severity of asthmatic attacks and the need for regular broncho-dilators. The activity has been attributed to compounds such as androsin and apocynin, which have been shown to inhibit allergen and PAF-induced bronchoconstriction.[35] Dorsch W et al (1991) reported the major anti asthmatic principle of *Picrorhiza kurroa*, was used as a lead compound for detailed structure- activity relationship. More than 25 synthesized or commercially available acetophenones with modified substitution patterns were screened in the Plethysmographic guinea pig model using PAF and/or ovalbumin as challenging agents for the generation of bronchial constriction. Whereas the aglycones in most cases were more effective than the corresponding glycosides, substitution patterns in position 3 and 4 of the phenyl ring and the keto function attached to the phenyl ring were found to be essential for marked anti asthmatic effect. 3,5-Dimethoxy-4-hydroxy-acetophenone showed the highest activity of all tested compounds. Initial in vitro studies on the mode of action could not sufficiently explain the

mechanism of antiasthmatic activity.[36,37] Mahajani S.S. et al (1977) reported 4 weeks pre-treatment with disodium cromoglycate (DSCG) and the powdered roots of the herb *Picrorhiza kurroa*, rendered guinea pigs less sensitive to histamine when compared with appropriate controls. The bronchodilator effects of isoprenaline and adrenaline were found to be markedly enhanced. The severity and duration of the allergic bronchospasm was significantly less in animals pretreated with the two drugs. Furthermore, the total histamine content of the lung tissue in animals pretreated with DSCG and *Picrorhiza kurroa* was significantly less than that in the untreated controls. The pretreatment was also found to exhibit inhibitory effect on the immunological release of histamine and SRS-A from chopped lungs.[38]

Immunomodulatory activity

The effect of an ethanolic extract of each drug was studied on delayed type hypersensitivity, humoral responses to sheep red blood cells, skin allograft rejection, and phagocytic activity of the reticuloendothelial system in mice. *Picrorhiza kurroa* was found to be a potent immunostimulant of both cell mediated and humoral activity.[35] Amit Gupta et al (2006) evaluated the effects of biopolymeric fraction RLJ-NE-205 from *Picrorhiza kurroa* on the in vivo immune function of the mouse. Balb/c mice were treated with the biopolymeric fraction RLJ-NE-205(12.5, 25 and 50 mg/kg body weight) for 14 days with sheep red blood cells (SRBC) as an antigen Haemagglutination antibody (HA) titre, plaque forming cell (PFC) assay, delayed type hypersensitivity (DTH) reaction, phagocytic index, proliferation of lymphocytes, analysis of cytokines in serum and CD4/CD8 population in spleen (determined by flow cytometry) were studied. At the dose of 50mg/kg significant increases in the proliferation of lymphocytes and cytokine levels in serum were observed.[39]

Anti-inflammatory activity

Apocynin is a constituent of root extracts of Picrorhiza and has been reported to possess antiinflammatory properties in laboratory animals. Apocynin concentration dependently inhibited the formation of thromboxane A2, whereas the release of prostaglandins E2 and F2α was stimulated. Apocynin inhibited arachidonicacid induced aggregation of bovine platelets, possibly through inhibition of thromboxane formation.[35] The rhizome of *Picrorhiza scrophulariiflora* is used to treat inflammatory diseases as a traditional medication. The ethanol extract of *Picrorhiza scrophulariiflora* in rabbits improves accelerated atherosclerosis through inhibition of redox-sensitive inflammation.[40]

Anti- allergic and Anti- anaphylactic activity:

C.C.Baruah et al (1998) studied a standardized iridoid glycoside fraction from the root and rhizome of *Picrorhiza kurroa* at a dose of 25mg/kg inhibited passive cutaneous anaphylaxis in mice, rats and protected mast cells from degranulation in a concentration dependant manner. Its effect was also studied in sensitised guinea pig ileum preparation in vitro (Schultz-Dale study) and in normal guinea pig in vivo (Konzett- Rossler, in preparation). There was inhibition of the Schultz-Dale response in sensitised guinea pig ileum, but the bronchospasm induced by histamine could not be antagonised or prevented by Picroliv, indicating the absence of a direct post- synaptic histamine receptor blocking activity.[41]

Immunostimulatory activity

Sharma ML, Rao CS and Duda PL studied extract of *Picrorhiza kurroa* leaves (PKLE) was found to stimulate the cell mediated and humoral components of the immune system as well as phagocytosis in experimental animals. PKLE elicited a dose- related increase in SRBC, induced 4hr (early) and24hr (delayed) hypersensitivity reactions in mice and rats, andhorse serum induced Arthus reaction in guinea pigs. It also enhanced the humoral immune responses in mice and rats and phagocytic function of the cells of the reticuloendothelial system in mice. PKLE exhibited no mitogenic activity but augmented the responsiveness of murine splenocytes to T cells mitogens phytohaemagglutinin and concanavalin A and B cell mitogen lipopolysaccharide.[42]

11) *Sivathai* (*Operculina turpethum*)

Anti-inflammatory activity

An experimental study was carried out (Rajashekar M et al; 2006) to evaluate the effect of oral administration of root powder of *O. turpethum* and its polyherbal formulation *Avipattikarchurna* on rat paw edema in albino rats. Results indicated that pretreatment with the root powder of *O. turpethum* and *Avipattikara churna* (100 mg/kg body weight) reduced the formalin induced edema volume to the extent of 36.45% and 27.11% respectively.[43] Anti-inflammatory potential of different extracts (ethanolic, aqueous and ethereal) of *O. turpethum* has been reported in carrageenan-induced paw oedema, cotton pellet-induced granuloma and formalin induced arthritis animal model of rats. The aqueous extract was reported more potent fraction in all three animal models.[44]In another study, pre-treatment of roots of *Operculina turpethum* and its polyherbal formulation *Avipattikar Churna* (100 mg/kg body weight) showed anti-inflammatory activity in rat paw oedema induced by formalin in experimental animal model.[45]

CLINICAL TRIALS

In an open, uncontrolled clinical study (Shailej Gupta; 2009), powder of *O. turpethum* roots administered as a single dose of 30 gm with fermented rice water (*Kanji*) for *Virechana* procedure produced strong purgation in 30 patients of *Amavata* i.e. Rheumatoid Arthritis. This purificatory procedure produced statistically significant improvement in the subjective parameters like joint pain, stiffness, swelling, tenderness, and in global assessment for overall improvement. Also there was a statistically significant reduction in the ESR values in the study patients.[46] Many patients may not tolerate one time dose of 30 Gms *Trivrit* powder. So it should not be recommended for each and every patient of rheumatoid arthritis.

12) *Thalisapathiri* (*Taxus baccata*)

Leaves are carminative, stomachic, tonic, astringent, antispasmodic and expectorant.[6]

13) *Jathikai* (*Myristica fragrans*)

Anti-inflammatory activity

The anti-inflammatory activity of *Myristica fragrans* was evaluated in carrageenan-induced edema in rats and acetic acid induced vascular permeability in mice. It was observed that the antiinflammatory effect was approximately the same as that of Indomethacin. The results propose that myristicin present in mace is responsible for anti-inflammatory action.[47] The antiinflammatory property of myristicin might be due to inhibition of chemokines, cytokines, nitrous oxide and growth factors in double stranded RNA (dsRNA) stimulated macrophages via the calcium pathway.[48] The methanol extract from seeds of *Myristica fragrans* used for the treatment of inflammatory diseases also had inhibitory effects on nitric oxide (NO) production.[49]

14) *Kirambu* (*Syzygium aromaticum*)

Antiallergic effects

Kim et al (1998) investigated the effect of a hot water extract (DER app. 14:1) of clove on the immediate hypersensitivity in rats. The extract inhibited the compound 48/80-induced systemic anaphylaxis in rats with an IC50 of 31.25 mg/kg when administered intraperitoneally. The extract also inhibited the local immunoglobulin E-mediated passive cutaneous anaphylactic reaction (IC50 = 17.78 mg/kg, i.v., IC50 = 19.81 mg/kg, p.o.). The extract also inhibited dose-dependently the induced histamine release from rat peritoneal mast cells. Clove essential oil increased the total white blood cell count and enhanced the delayed-type hypersensitivity response in mice. Moreover, it restored cellular and humoral immune responses in cyclophosphamide-immunosuppressed mice in a dose-dependent manner. The immunostimulatory activity found in mice treated with clove essential oil is due to improvement in humoral and cell mediated immune response mechanisms (Carrasco et al 2009).

15) *Thippili* (*Piper longum*)

Piperine (*Piper nigrum, Piper longum*)

Antiasthmatic activity

Kim et al., 2009 induced asthma in Balb/c mice by ovalbumin sensitization. Piperine (4.5 and 2.25 mg/kg) was orally administered 5 times a week for 8 weeks and it was found that piperine- treated groups had suppressed eosinophil infiltration, allergic airway inflammation and airway hyper responsiveness and these occurred by suppression of the production of interleukin-4, interleukin-5, immunoglobulin E and histamine.[50]

Roots and fruiting spikes are used in treating diarrhoea, indigestion, jaundice, urticaria, abdominal disorders, hoarseness of voice, asthma, hiccough, cough, piles, malarial fever, flatulence, vomiting, thirst, oedema, earache, wheezing, chest congestion, throat infections, worms, sinusitis. This considered as rejuvenating plant.[5] Infusion is stimulant, carminative and alterative, tonic more powerful than black pepper; also aphrodisiac, diuretic, vermifuge and emmenagogue. Externally rubefacient. Root is stimulant.[6]

16) *Seviyam* (Root of *Piper nigrum*)

It cures Deep seated pain, Ageusia, Tridosha diseases, Chronic fever, Prolonged cough, Tuberculosis, Hoarseness of voice, Throat disorders, Fever.[2]

18) *Kughaineer* (*Maranta arundinacea*)

Starch obtained from rhizome is astringent, sweet, refrigerant, tonic, aphrodisiac, emollient, expectorant, febrifuge and rubefacient. It is useful in dysentery, diarrhoea, dyspepsia, bronchitis, cough and also as a nourishing food for infants, invalids and convalescents.[5]It is nutrient and demulcent.[6]

19) *Chukku* (*Zingiber officinale*)

Antiinflammatory activity

Recent study documented the ability of a hexane fraction of dried ginger methanolic extract to suppress proinflammatory gene expression in LPS-activated BV2 microglial cells, thus displaying anti-neuroinflammatory activity.[51] Gingerol and structurally related pungent principles of ginger including shogaol exert inhibitory effects on biosynthesis of prostaglandins and leukotrienes through suppression of prostaglandin synthase or 5-lipoxygenase.[52-53] Several reports have addressed the anti-inflammatory effects of whole ginger extract on the production of NO/iNOS, PGE2/COX-2, TNF-a,

IL-1b, and macrophage chemoattractant protein-1 (MCP- 1) in murine macrophages, such as RAW264.7 cells and J774.1 cells, as well as human monocytes, U937 cells.[54-56] The proposed mechanism behind 6-shogaol inhibition of NO evolution in stimulated macrophages involves down regulation of inflammatory iNOS and COX-2 gene expression by inhibition of the activation of NF-jB, because NF-jB plays a critical role in the coordination of the expressions of proinflammatory enzymes.[57] For the human being, the consumption of fresh ginger demonstrated promising results for the decrease of arthritis-induced.[58] These results show that ginger could be used as anti-inflammatory agent and thus as anti-pain.[59]

Immunomodulatory activity

The beneficial effects of ginger in treating coughs, colds and flu is probably linked to immune-boosting properties of the plant.[60]Few studies have examined the potential immunomodulatory activity of ginger. Non-specific immunity was increased in rainbow trout eating a diet containing 1% of a dried aqueous ginger extract for three weeks.[61]Mice fed a 50% ethanolic ginger extract (25 mg/kg) for seven days had higher haemagglutination antibody titre and plaque-forming cell counts, consistent with improved humoralimmunity.[62] One in vitro study found that ginger suppressed lymphocyte proliferation; this was mediated by decreases in IL-2 and IL- 10 production.[63]

CONCLUSION

From this literature review it is evident that the most of ingredients of *Nilavaagai chooranam* has pharmacological activity like anti histamine activity, anti-inflammatory activity, immunomodulatory activities which are responsible for its therapeutic activity claimed in literature.

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[PRINCIPAL INVESTIGATOR: Dr.V. Asha jeba keerthana]

***REG NO*:**

FORM I - SCREENING & SELECTION PROFORMA

SL.NO **OP NO:**

NAME: **AGE/GENDER:** **CONTACT NO:**

INCLUSION CRITERIA

Age :20-65Yrs	Yes/ No	Papules	Yes/ No
Itching	Yes/ No	Scaling	Yes/ No
Oozing	Yes/ No	Vescicles	Yes/ No
Erythema	Yes/ No	Hyperpigmentation	Yes/No
Willing to give blood for investigation	Yes/ No	Lichenification	Yes/ No
Willing to undergo leech therapy	Yes/ No	Willing to attend OPD or admission in IPD for 48 days	Yes/No

If the symptom more than 5, may be included for the clinical trial.

EXCLUSION CRITERIA :**H/O**

Hypertension	Yes/No	Evidence of any skin disease other than eczema	Yes/ No
Hemophilia	Yes/No	Pregnancy and Lactation	Yes/No
H IV	Yes/No	Cardiac ailments	Yes/No
Narcotics	Yes/No	Thrombocytopenia	Yes/No
Hepatitis B	Yes/No	Renal diseases	Yes/No

ADMITTED TO TRIAL :YES NO If yes, serial No:

OPD IPD

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer: Signature of the HOD

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[PRINCIPAL INVESTIGATOR: Dr.V.Asha jeba keerthana]

FORM II – CASE RECORD FORM

STUDY NO **OP / IP NO:**

NAME: **AGE/GENDER:**

ADDRESS : **CONTACT NO :**

RELIGION : H / M / C / O

OCCUPATION: **INCOME:**

MARRITAL STATUS: MARRIED **UNMARRIED**

DATE OF INITIAL ASSESSMENT:

COMPLAINTS & DURATION:

PERSONAL HISTORY:

PERSONAL HABITS	YES	NO	IF YES SPECIFY DURATION	AMOUNT/Qty
Smoking				
Tobacco Chewing				
Alcohol				
Narcotic Drug Addiction				

HISTORY OF PREVIOUS ILLNESS AND TREATMENT TAKEN:

FAMILY HISTORY:

Whether this problem runs in family? 1. Yes 2.No

If yes, mention the relationship of affected person(s)

1._____

2._____

DIETARY HABIT:

1.Vegetarian 2.Non-vegetarian

MENSTURAL HISTORY AND OBSTETRIC HISTORY:

GENERAL EXAMINATION:

- Body weight [Kg] :
- Height [cms] :
- Body Temperature [^{0}F] :
- Blood Pressure (mm/Hg) :
- Pulse Rate /min. :
- Heart Rate / min. :
- Respiratory Rate /min. :
- Pallor :
- Jaundice :
- Clubbing :
- Cyanosis :
- Pedal Oedema :
- Lymphadenopathy :
- Jugular vein pulsation :

VITAL ORGANS EXAMINATION:

Heart

Lungs

Brain

Liver

Kidney

Spleen

Stomach

SYSTEMIC EXAMINATION:

Cardio-vascular system

Respiratory system

Gastro intestinal system

Central nervous system

Uro-genital system

Endocrine system

SIDDHA SYSTEM OF EXAMINATION

1. THEGI (TYPE OF BODY CONSTITUTION):

1. Vaathaudal
2. Pithaudal
3. Kabaudal
4. Thonthaudal

2. NILAM (LAND WHERE THE PATIENT LIVED MOST):

1. Kurinji
2. Mullai
3. Marutham
4. Neithal
5. Paalai

3. KAALAM:

1. Kaarkaalam
2. Koothirkaalam
3. Munpanikaalam
4. Pinpanikaalam
5. Ilavenilkaalam
6. Muthuvenilkaalam

4. GUNAM:

1. Sathuvam
2. Rasogunam
3. Thamogunam

5.PORIPULANGAL(SENSORY ORGANS):

	0^{th} day	**8^{th} day**	**15^{th} day**	**22^{nd} day**	**29^{th} day**	**36^{th} day**	**43^{rd} day**	**49^{th} day**
Mei (skin)								
Vaai(mouth)								
Kan (eye)								
Mooku(nose)								
Sevi (ear)								

6. KANMENDRIYAM(MOTOR ORGANS):

	0th day	**8th day**	**15th day**	**22nd day**	**29th day**	**36th day**	**43rd day**	**49th day**
Kai(upperlimb)								
Kaal(lowerlimb)								
Vaai(speech)								
Eruvai (excretory organ)								
Karuvai (reproductive organs)								

7. KOSANGAL (SHEATH):

	0th day	**8th day**	**15th day**	**22nd day**	**29th day**	**36th day**	**43rd day**	**49th day**
AnnamayaKosam								
Pranamayakosam								
Manomayakosam								
Vignanamayakosam								
Aananthamayakosam								

8. UYIR THATHUKKAL (THREE HUMOURS):

A) VALI

	0th day	8th day	15th day	22nd day	29th day	36th day	43rd day	49th day
Praanan								
Abaanan								
Viyaanan								
Udhaanan								
Samaanan								
Naagan								
Koorman								
Kirukaran								
Devathathan								
Dhananjeyan								

B) AZHAL

	0th day	**8th day**	**15th day**	**22nd day**	**29th day**	**36th day**	**43rd day**	**49th day**
Analaka pitham								
Prasaka pitham								
Ranjaka pitham								
Aalosaka pitham								
Saathaka pitham								

C) IYAM:

	0th day	**8th day**	**15th day**	**22nd day**	**29th day**	**36th day**	**43rd day**	**49th day**
Avalambagam								
Kilethagam								
Pothagam								
Tharpagam								
Santhigam								

9. SEVEN UDAL DHATHUS: (7 SOMATIC COMPONENTS)

	0th day	**8th day**	**15th day**	**22nd day**	**29th day**	**36th day**	**43rd day**	**49th day**
Saaram								
Senneer								
Oon								
Kozhuppu								
Enbu								
Moolai								
Sukkilam / Suronitham								

ENVAGAI THERVU: [EIGHT TYPES OF EXAMINATION]

I. NAADI: [PULSE PERCEPTION]

0th day	**8th day**	**15th day**	**22nd day**	**29th day**	**36th day**	**43rd day**	**49th day**

II. SPARISAM:

0th day	**8th day**	**15th day**	**22nd day**	**29th day**	**36th day**	**43rd day**	**49th day**

III. NAA:[TONGUE]

0th day	8th day	15th day	22nd day	29th day	36th day	43rd day	49th day

IV.NIRAM: [COMPLEXION]

1.Vaatham 3. Kabam

2. Pitham

V.MOZHI: [VOICE]

1. High Pitched 2. Low Pitched

3. Medium Pitched

VI.VIZHI: [EYES]

0th day	8th day	15th day	22th day	29th day	36th day	43rd day	49th day

VII. MALAM: [BOWEL HABITS / STOOLS]

	Before treatment	After treatment
Niram		
Irugal		
Ilagal		
Others		

VIII. MOOTHIRAM [URINE EXAMINATION]

Neerkkuri	Before treatment	After treatment
Niram		
Edai		
Manam		
Nurai		
Enjal		

NEIKURI	Before treatment	After treatment
Aravu (Serpentine fashion)		
Aazhi (Annular/Ringed fashion)		
Muthu (Pearl beaded fashion)		
Kalappu (Mixed fashion)		
Other fashion		

CLINICAL EXAMINATION:

CLINICAL EXAMINATION OF SKIN

1.Site: ----------

---

2. Colour:	Normal	Reddish	Black	Greyish
3. Shape:	Irregular	Coin shape	Dispersed	
4. Itching:	No	Mild	Moderate	Severe
5.Oozing:	No	Mild	Moderate	Severe
6. Erythema:	No	Mild	Moderate	Severe
7. Bleeding:	No	Mild	Moderate	Severe
8. Crusting:	No	Mild	Moderate	Severe
9. Lichenification:	No	Mild	Moderate	Severe
10. Scaling:	No	Mild	Moderate	Severe

	YES	**NO**
14. Ulcération:		
15. Macule:		
16. Papule:		
17. Pustule:		
18. Blister:		
19.Vesicle :		

20. Pigmentation:	Normal	Hypo	Hyper

LEECH THERAPY ASSESSMENT FORM

STUDY NO: **OP/IP NO:**

Day	Date	Site	No. of Lesions appeared
Day 1			
Day 8			
Day 15			
Day 22			
Day 29			
Day 36			
Day 43			
Day 49			

CLINICAL ASSESSMENT DURING AND AFTER TRIAL

OP/ IP NO: **STUDY NO:** **NAME:**

AGE/GENDER: **DATE OF RECRUITMENT:**

	0	**After 8 days**	**After 15 days**	**After 22 days**	**After 29 days**	**After 36 days**	**After 43 days**	**After 49 days**
Itching								
Oozing								
Erythema								
Papules								
Vesicle								
Scaling								
Pigmentation								
Lichenification								

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer: **Signature of the HOD**

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[PRINCIPAL INVESTIGATOR: Dr.V.Asha jeba keerthana]

FORM III – LABORATORY INVESTIGATIONS FORM

STUDY NO: OP / IP NO: AGE/GENDER:

BLOOD INVESTIGATIONS		**NORMAL VALUES**	**BEFORE TMT (DATE)**	**AFTER TMT (DATE)**
Hb(gm/dl)		**M:12-15 F:11.5-14**		
T.WBC (cells/cu.mm)		**4000-11000**		
DIFFERENTIAL COUNT (%)	**Polymorphs**	**40-75**		
	Lymphocytes	**20-40**		
	Monocytes	**2-10**		
	Eosinophils	**1-6**		
	Basophils	**0-1**		
T.RBC(million cells/cu.mm)		**M:4.0-5.5 F:3.5-4.5**		
ESR(mm/hour)	**½ hr.**	**M:1-13 F:1-20**		
	1hr			
Bleeding Time		**1-3 minutes**		
Clotting Time		**3-8 minutes**		
Blood group & Rh typing				
Blood Investigations		**Normal Values**	**Before TMT (DATE)**	**After TMT (DATE)**
Blood glucose (mg/dl)	**Fasting**	**70-110**		
	PP	**80-140**		
	Random	**80-120**		

RFT (mg/dl)	**Blood urea**	**16-50**		
	Serum creatinine	**0.6-1.2**		
	Serum uric acid	**M:3-9 F:2.5-7.5**		
LFT (mg/dl)	**Total bilirubin**	**0.2-1.2**		
	Direct bilirubin	**0.1-1.2**		
	Indirect bilirubin	**0.2-0.7**		
	SGOT (IU/L)	**0-40**		
	SGPT (IU/L)	**0-35**		
	Alkaline phosphatase (IU/L)	**80-290**		
Lipid profile	**Total cholesterol (mg/dl)**	**150-225**		
	HDL (mg/dl)	**30-63**		
	LDL (mg/dl)	**<130**		
	VLDL (mg/dl)	**<40**		
	TGL (mg/dl)	**<160**		
Urine investigations	**Before TMT(Date)**		**After TMT (Date)**	
Albumin				
Fasting sugar				
PP sugar				
Deposits				

OTHER TESTS:

HbsAg **HIV**

VDRL **HCV**

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer: **Signature of the HOD**

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[PRINCIPAL INVESTIGATOR: Dr.V.Asha jeba keerthana]

FORM IV - DRUG COMPLIANCE FORM

STUDY NO **OP / IP NO:** **NAME:**

AGE/GENDER:

OPD PATIENTS

On 1st	day-Date:	Drugs issued:	(Gms)	Drugs returned:	(Gms)
On 8th	day-Date:	Drugs issued:	(Gms)	Drugs returned:	(Gms)
On 15th	day-Date:	Drugs issued:	(Gms)	Drugs returned:	(Gms)
On 22nd	day-Date:	Drugs issued:	(Gms)	Drugs returned:	(Gms)
On 29th	day-Date:	Drugs issued:	(Gms)	Drugs returned:	(Gms)
On 36th	day-Date:	Drugs issued:	(Gms)	Drugs returned:	(Gms)
On 43rd	day-Date:	Drugs issued:	(Gms)	Drugs returned:	(Gms)
On 49th	day-Date:	Drugs issued:	(Gms)	Drugs returned:	(Gms)

IPD PATIENTS

	Date	Morning	Evening	Day	Date	Morning	Evening
Day 1				Day25			
Day2				Day26			
Day3				Day27			
Day4				Day28			
Day5				Day29			
Day6				Day30			
Day7				Day31			
Day 8				Day32			
Day9				Day33			
Day10				Day34			
Day11				Day35			
Day12				Day36			
Day13				Day37			
Day14				Day38			
Day15				Day39			
Day16				Day40			
Day17				Day41			
Day18				Day42			
Day19				Day43			
Day20				Day44			
Day21				Day45			
Day22				Day46			
Day23				Day47			
Day24				Day48			

Date:

Station:

Signature of the Investigator

Signature of the Lecturer Signature of the HOD

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FORM V – PATIENT INFORMATION SHEET

Name of Principal Investigator: Dr.V.Asha jeba keerthana

Name of the institute: National Institute of Siddha, Tambaram Sanatorium, Chennai-47.

I, Dr.V.Asha jeba keerthana, studying M.D(Siddha) at National Institute of Siddha, Tambaram Sanatorium is doing a trial on *Karappan*(Eczema). Eczema is a most common persistent skin disease, occurring throughout the world. In this regard, I am in a need to ask you few questions. I will maintain confidentiality of your comments and data obtained . There will be no risk of disclosing your identity and no physical, psychological or professional risk is involved by taking part in this study. Taking part in this study is voluntary. No compensation will be paid to you for taking part in this study.

You can choose not to take part. You can choose not to answer a specific question. There is no specific benefit for you if you take part in the study. However, taking part in the study may be of benefit to the community, as it may help us to understand the problem of defaulters and potential solutions. If you agree to be a participant in this study, you will be included in the study primarily by signing the consent form and then you will be given the internal medicine NILAVAAGAI CHOORANAM -1g BD with GHEE for 48 days, THENGAAI THYLAM (External medicine) and Leech therapy(for selected person).

The information I am collecting in this study will remain confidential. I will ask you few questions through a questionnaire. It will take approximately 20 min of time. Your name won't be mentioned in the lab investigation form instead a code will be used. If you wish to find out more about this study before taking part, you can ask me all the questions you want or contact Dr.V.Asha jeba keerthana, PG Scholar cum principal investigator of this study, National Institute of Siddha, Chennai-47. You can also contact the Member-secretary of Ethics committee, National Institute of Siddha, Chennai 600047.

Tel No: 044-22380789 for rights and participation in the study.

தேசிய சித்த மருத்துவ நிறுவனம்

அயோத்திதாஸ் பண்டிதர் மருத்துவமனை - சென்னை 47

கரப்பான் நோய்க்கான சித்த மருந்துகளின் (நிலவாகைச் சூரணம் மற்றும் தேங்காய்த் தைலம்) பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கான தகவல் படிவம்.

முதன்மை ஆராய்ச்சியாளர் பெயர்: மருத்துவர்: வி. ஆஷா ஜெப கீர்த்தனா

நிறுவனத்தின் பெயர்: தேசிய சித்த மருத்துவ நிறுவனம் சென்னை 47

சித்த மருத்துவ நிறுவனத்தில் பட்ட மேற்படிப்புபயின்றுவரும் நான் மருத்துவர் வி. ஆஷா ஜெப கீர்த்தனா கரப்பான் என்னும் நோயில் மருத்துவ ஆராய்ச்சியில் ஈடுபட்டுள்ளேன். கரப்பான் என்னும் நோய் உண்டாவதற்கான அடிப்படை காரணம் கிருமிகள் அன்று. சுணையுள்ள சில பொருட்கள், கம்பளி போன்றவை தோலில் உராய்வதாலும், அந்தகரண வேறுபாடுகளாலும், சில வகை உணவுப் பொருட்களாலும் உண்டாவதாக கூறப்படுகிறது. இது பரவ கூடிய நோய் அன்று. இந்த ஆராய்ச்சி சம்பந்தமாக சில கேள்விகளை கேட்கவும், தேவையான ஆய்வக பரிசோதனைக்கு தங்களை உட்படுத்தவும் உள்ளேன். இது சம்பந்தமான தங்களது அனைத்துவிவரங்களும் ரகசியமாக வைக்கப்படும் என உறுதி அளிக்கிறேன். இதில் பயணப்படி முதலிய எந்த உதவித் தொகையும் வழங்கப்பட மாட்டாது. இந்த ஆராய்ச்சியின் போது உடலுக்கு வேறு பாதிப்பு ஏற்படும் பட்சத்தில் தேசிய சித்த மருத்துவமனையில் தக்க சிகிச்சை அளிக்கப்படும். இந்த ஆராய்ச்சிக்கு தாங்கள் விருப்பத்தின் பேரில் உட்படும் பட்சத்தில் உள்மருந்தாக நிலவாகைச் சூரணத்தை வெந்நீர் (1கிராம்) 2 வேளை, வெந்நீரில் உணவுக்குப் பின் 48 நாட்கள் உட்கொள்ள வேண்டும். வெளி மருந்தாக தேங்காய் தைலம் வெளியே தடவ வேண்டும். வெளி நோயாளர்கள் 7 நாட்களுக்கு ஒருமுறை மருத்துவமனைக்குவரவேண்டும். விருப்பம் தெரிவிக்கும் பட்சத்தில் நோயாளிக்கு அட்டை விடல் சிகிச்சையும் அளிக்கப்படும்.

அட்டை விடுதல் சிகிச்சை என்பது அட்டையை நோயுள்ள இடத்தில் விடச்செய்து இரத்தத்தை உறிஞ்ச செய்வதன் மூலம் நோயின் தன்மையை குறைக்கும் முறையாகும். இதனால் எந்த வித பக்க விளைவுகளும் ஏற்படாது. விரைவில் நோயின் தன்மை குறையும்.

இந்த சிகிச்சை முறை சித்த மருத்துவத்தில் நெடுங்காலமாக பின்பற்றப்பட்டு வருகிறது. அட்டையால் உறிஞ்சப்படும் இரத்தத்தின் அளவு மிக மிக குறைந்த அளவே ஆகும். எனவே எந்த பாதிப்பும் ஏற்படாது. ஒவ்வொரு பயன்படுத்தப்பட்ட அட்டை மற்றொரு நோயாளிக்கு பயன்படுத்தப்படமாட்டாது.

இந்த ஆராய்ச்சியில் நோயினராக சேர்ந்த பிறகு உங்களுக்குவிருப்பம் இல்லையெனில் எப்போது வேண்டுமானாலும் விலகி கொள்ளலாம். இந்த

ஆராய்ச்சி சம்பந்தமாக மற்றவிபரங்களுக்கும் நோயின் தன்னை பற்றியும் முதன்மை ஆராய்ச்சியாளரான மருத்துவர் வி. ஆஷா ஜெப கீர்த்தனா (பட்ட மேற்படிப்பாளர் சிறப்புமருத்துவ துறை) அணுகவும். கைப்பேசி எண் 9442830149. மேலும் இந்த ஆராய்ச்சிக்கு IEC சான்று பெறப்பட்டுள்ளது. இந்த மருந்து சிறப்பாக கரப்பான் நோய்க்காக அங்கீகரிக்கப்பட்ட சித்த மருத்துவநூலில் கூறப்பட்டுள்ளது. ஏற்கனவே உபயோகத்தில் உள்ள இது போன்றமருந்து இதுவரை நோயாளிகளிடம் எந்த வித பக்க விளைவுகளையும் ஏற்படுத்தவில்லை. மேலும் உணவு முறையில் மருத்துவரால் கூறப்படும் பத்தியம் காக்குமாறு அறிவுறுத்தப்படுகிறது.

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FORM VI- INFORMED CONSENT FORM

*"**I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction.***

***I consent voluntarily to participate in this study and understand that I have the right to withdraw from the study at any time without affecting my further medical care**".*

"I have received a copy of the information sheet/consent form".

Signature of the participant:

In case of illiterate participant

*"**I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely**."*

Date:

Signature of a witness Left thumb Impression of the Participant

(Selected by the participant bearing no connection with the survey team)

Signature of the Investigator

Signature of the Lecturer **Signature of the HOD**

தேசிய சித்த மருத்துவ நிறுவனம்
அயோத்திதாஸ் பண்டிதர் மருத்துவமனை - சென்னை 47

கரப்பான் நோய்க்கான சித்த மருந்துகளின் (நிலவாகைச் சூரணம் மற்றும் தேங்காய்த் தைலம்) பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கான

ஒப்புதல் படிவம் - ஆய்வாளரால் சான்றளிக்கப்பட்டது

நான் இந்த ஆய்வு குறித்த அனைத்து விபரங்களையும் நோயாளிக்கு புரியும் வகையில் எடுத்துரைத்தேன் என உறுதியளிக்கிறேன்.

தேதி: கையொப்பம்:

இடம்: பெயர்:

நோயாளியின் ஒப்புதல்

என்னிடம் இந்த மருத்துவ ஆய்வின் காரணத்தையும், மருந்தின் தன்மை மற்றும் மருத்துவ வழிமுறை பற்றியும், தொடர்ந்து எனது உடல் இயக்கத்தை கண்காணிக்கவும், அதனை பாதுகாக்கவும் பயன்படும் மருத்துவ ஆய்வுக்கூட பரிசோதனைகள் பற்றி திருப்தி அளிக்கும் வகையில் ஆய்வு மருத்துவரால் விளக்கிக் கூறப்பட்டது.

நான் இந்த மருத்துவ ஆய்வின் போது, எப்பொழுது வேண்டுமானாலும் இந்த ஆய்விலிருந்து என்னை விடுவித்து கொள்ளும் உரிமையை தெரிந்திருக்கிறேன். நான் என்னுடைய சுதந்திரமாக தேர்வு செய்யும் உரிமையைக் கொண்டு கரப்பான் நோய்க்கான நிலவாகைச் சூரணம் (உள்மருந்து) மற்றும் தேங்காய்த் தைலம் (வெளிமருந்து) மருந்தின் பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கு என்னை உட்படுத்த ஒப்புதல் அளிக்கிறேன்.

தேதி: கையொப்பம்:

இடம்: பெயர்:

உறவுமுறை: சாட்சிக்காரர் கையொப்பம்:

பெயர்:

விரிவுரையாளர் கையொப்பம்: துறைத்தலைவர் கையொப்பம்

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[PRINCIPAL INVESTIGATOR: Dr.V.Asha jeba keerthana]

FORM VII- PHARMACOVIGILANCE/WITHDRAWAL FORM

1. Patient / consumer identification (please complete or tick boxes below as appropriate)

NATIONAL PHARMACOVIGILANCE PROGRAMME FOR SIDDHA DRUGS

Reporting Form for Suspected Adverse Reactions to Siddha

Please note: i.All consumers / patients and reporters information will remain confidential.

ii. It is requested to report all suspected reactions to the concerned, even if it does not have complete data, as soon as possible.

Peripheral Center code: State:

Name	Father name	Patient / Record No.
Ethnicity	Occupation	
Address Village / Town Post / Via District / State		Date of Birth / Age: Sex: M / F Weight : Degam:

2. Description of the suspected Adverse Reactions (please complete boxes below)

Date and time of initial observation		Season:
Description of reaction		Geographical area:

3. List of all medicines / Formulations including drugs of other systems used by the patient during the reporting period:

Medicine	**Daily dose**	**Route of administration & Vehicle - Adjuvant**	**Date**		**Diagnosis for which medicine taken**
			Starting	**Stopped**	
Siddha					
Any other system of medicines					

4. Brief details of the Siddha Medicine which seems to be toxic:

Details	Drug – 1	Drug – 2	Drug – 3
a) Name of the medicine			
b) Manufacturing unit and batch No. and date			
c) Expiry date			
d) Purchased and obtained from			
e) Composition of the formulation / Part of the drug used			

b) Dietary Restrictions if any

c) Whether the drug is consumed under Institutionally qualified medical supervision or used as self medication.

d) Any other relevant information.

5. Treatment provided for adverse reaction:

6. The result of the adverse reaction / side effect / untoward effects (please complete the boxes below)

Recovered:	Not recovered:	Unknown:	Fatal:	If Fatal Date of death:
Severe: Yes / No.	Reaction abated after drug stopped or dose reduced:			
	Reaction reappeared after re introduction:			

Was the patient admitted to hospital? If yes, give name and address of hospital	

7. Any laboratory investigations done to evaluate other possibilities? If Yes specify:

8. Whether the patient is suffering with any chronic disorders?

Hepatic Renal Cardiac Diabetes Malnutrition

Any Others

9. H/O previous allergies / Drug reactions:

10. Other illness (please describe):

11. Identification of the reporter:

Type (please tick): Nurse / Doctor / Pharmacist / Health worker / Patient / Attendant / Manufacturer / Distributor / Supplier / Any others (please specify)
Name:
Address:
Telephone / E – mail if any :

Signature of the reporter: **Date:**

Please send the completed form to:

Name & address of the
RRC-ASU/ PPC-ASU

The Director
National Institute of Siddha,
(Pharmacovigilance Regional Centre For Siddha
icine),
Tambaram Sanatorium, Chennai-600 047.
☏ (O) 044-22381314 Fax : 044 – 22381314
Website : www.nischennai.org
Email: nischennaisiddha@yahoo.co.in

* ** * * * *

This filled-in ADR report may be sent within one month of observation /occurrence of ADR

Who Can Report?

⇒ Any Health care professionals like Siddha Doctors / Nurses / Siddha Pharmacists / Patients etc.

What to Report?

⇒ All reactions, Drug interactions,

Confidentiality

⇒ The patient's identity will be held in strict confidence and protected to the fullest extent.

⇒ Submission of report will be taken up for remedial measures only not for legal claim

Date:

Station:

Signature of the Investigator:

Signature of the Lecturer: Signature of the HOD

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FORM VIII - DIETARY ADVICE FORM

சேர்க்க கூடிய உணவுகள்:

முருங்கைப்பிஞ்சு (Drumstick),

அவரைப்பிஞ்சு

காரட் (Carrot),

பீட்ரூட் (Beetroot),

கரிசாலை

பொன்னாங்கண்ணி

மணத்தக்காளி

சிறுகீரை

பசலைக்கீரை (Palak),

கறிவேப்பிலை (curry leaves)

கொத்தமல்லி (coriander)

மாதுளை (Pomegranate)

ஆப்பிள் (Apple)

பேரீச்சை (Dates)

அத்தி (Fig)

திராட்சை (Grapes)

சப்போட்டா (Sappotta)

உலர் திராட்சை (Dry grapes)

வேகவைத்த காய்கறிகள் (vegetables)

தவிர்க்க வேண்டியவைகள்:

கம்பு, சோளம்,

கேழ்வரகு, தினை (Millets)

சாமை,

வாழைக்காய் (Ripe banana)

பூசணிக்காய் (Pumpkin)

கோழிக்கறி (Chicken)

மீன் (Fish)

நண்டு (Crab)

கருவாடு (Dry fish)

முட்டை (Egg)

கொய்யா (Guava)

புளி (Tamarind)

ஊறுகாய் (Pickles)

புகையிலை (Tobacco)

மது அருந்துதல் (Alcohol)

பெண்போகம்.

குளியலுக்கு:

சோப்பு, சீயக்காய் தவிர்க்கவும்.

பாசிப்பயறு மாவு, கடலை மாவு தேய்த்து குளிக்கவும்.

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